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APR 10 1925

Contents—951; Market Review—956

IRON TRADE REVIEW

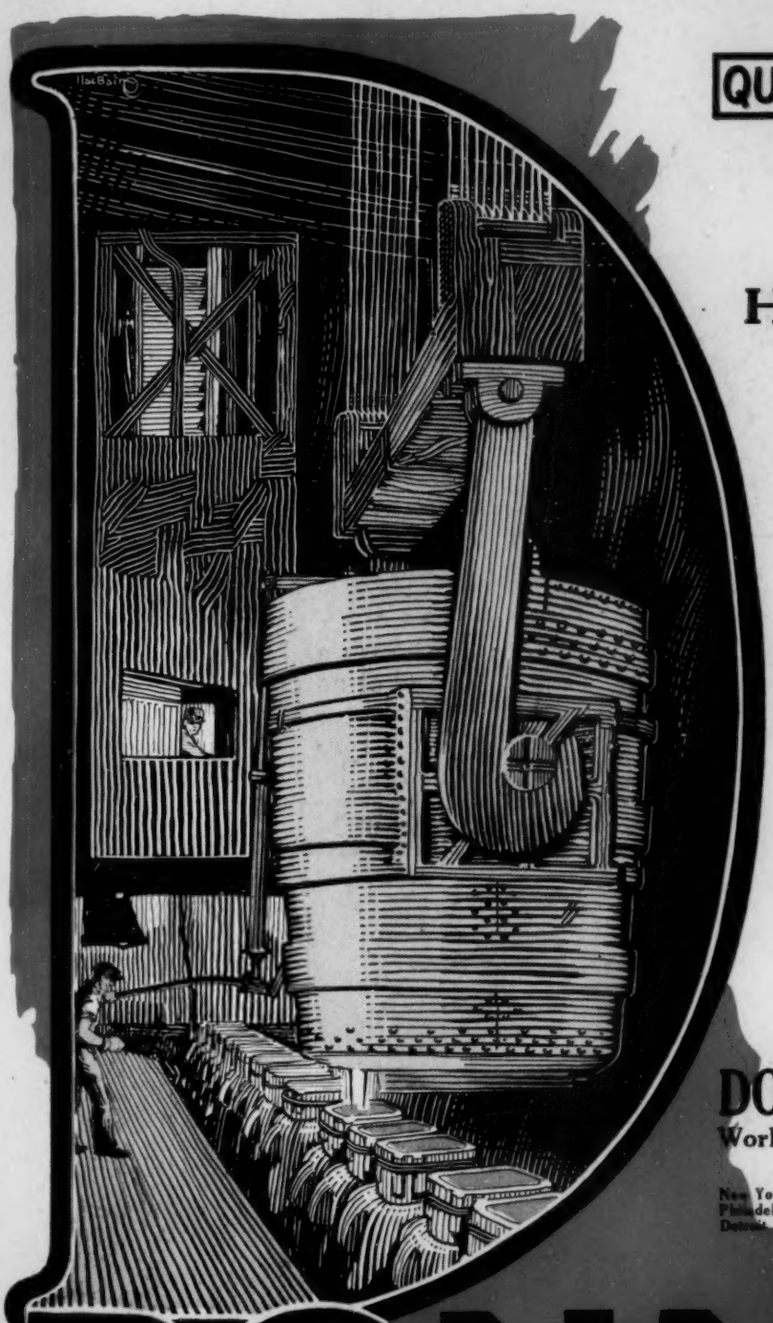
Registered U. S. Patent Office

Published Weekly
VOL. LXXVI. No. 15

CLEVELAND, O., APRIL 9, 1925

Entered as second-class matter at the post-office in Cleveland, Ohio, under the act of March 3, 1879

Six Dollars a Year
Single Copy 25 Cents



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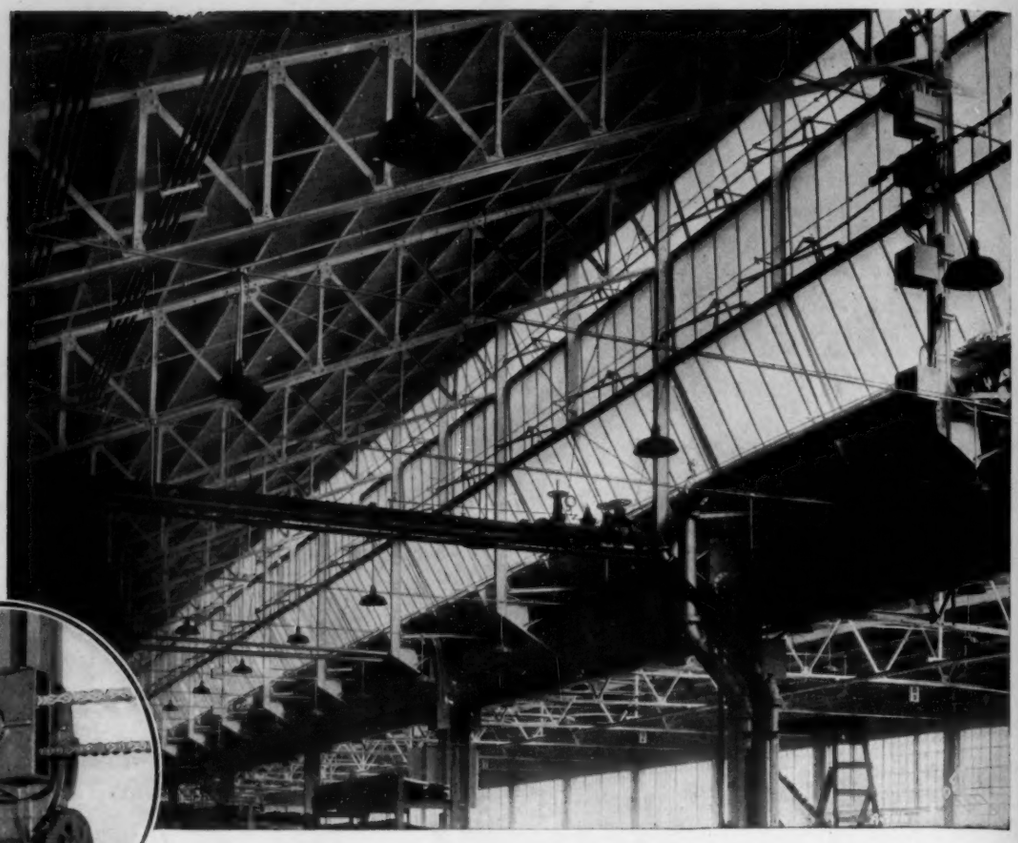

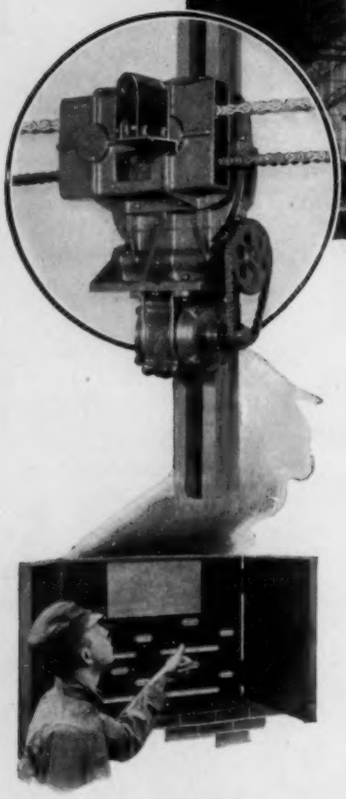

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IRON TRADE REVIEW

Cleveland, O., April 9, 1922
Volume LXXVI *No. 15*

Designing the Pickling Department *for* Economy in Maintenance

Rods in Tank Construction Should Be Acid Resistant—Size of Thread Important—Improved Method of Bolting Plungers and Partitions

By C. A. Crawford

PROVIDED the timbers selected for pickling tanks are originally sound and of reasonably large cross section the endurance of the vats then is contingent upon the performance of the bolts and tie rods. Without going into a technical or detailed explanation of the various mechanisms of corrosion that combine to combat and destroy tie rods, some of the ways that failure finally is observed to occur will be cited. The mechanism of some classes of corrosion and the theories that explain most tie rod failures, which often are puzzling, has been studied carefully and described in the results of research work carried on for the International Nickel Co. over the past several years. The results of this work on tie rod failures were presented in IRON TRADE REVIEW, April 6, 1922.

The metal to select for bolts and tie rods is the one which offers the best combination properties to reduce these failures to a minimum. The metal must be corrosion resistant, strong, of high yield point, of high endurance and free from metallic fatigue, free from components that will start corrosion by cementation, and readily machinable.

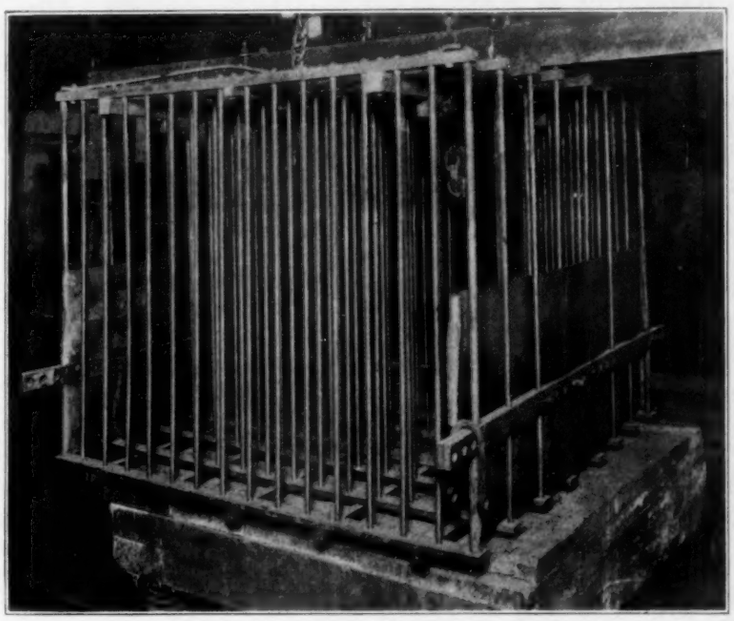


FIG. 4—TYPE OF RACK USED FOR PICKLING BLACK PLATE

Corrosion of tie rods down to a small cross section is less frequently encountered now than formerly. With increasing interest in maintaining low pickling costs and consequent greater vigilance in pickling departments this type of rod failure has come to be recognized as a sign of avoidable slackness in maintenance. The mechanism of the corrosion which cuts tie rods to pencil points has been studied and explained. When this occurs it indicates a seepage of pickle liquor through the timbers, or at the joints, or a stagnation of weak spent pickle liquor in the sump in which the tank stands. Proper drainage around the tanks is of primary importance. Seepage of liquor into the tie rods is an indication that the tank is not pulled up tightly.

If the timbers cannot be pulled up tightly enough to protect the tie rods from seepage, either the timbers are worthless, porous, or weak, or have not been properly fitted by the joiner; or else the rods are too weak. A properly made tank of sound timber can be pulled up with good tie rods and held by systematic retightening, so that the seepage will be held down to limits which will not cause local cutting off of the tie rods within the normal service life of the timbers. The tie rod should

This is a second of a series of three articles dealing with pickling practice and equipment. The author, C. A. Crawford, is associated with the International Nickel Co., 67 Wall street, New York.

be worn down with fair uniformity throughout their length or finally should be rendered unfit for use by destruction of the threaded ends which are the hardest parts to fully protect. Localized cutting or pencil pointing of tie rods indicates a leak of long duration. Rods from properly maintained tanks frequently should be good enough for reuse in a second set of timbers.

Physical Properties Important

Tie rods may be broken at full cross section due to the force required to pull the timbers up to the tightness required to close leaks. This, of course, means that the tie rod is too weak. Either it is too small in section or is of an alloy whose unit tensile strength is too low for this service. In the case of cast rods local weaknesses in the casting which cause the rod to break, may arise from the uncertainties of foundry practice.

Tie rods may stretch but if pulled too far they will break because of insufficient tensile strength of the metal. Some rods purchased to save initial outlay have low yield points in tension, will stretch in service and are in reality the most costly to buy because of the leakage losses which follow and the foreshortening of the life of the timbers through seepage between loosely held joints.

Failures of tie rods occur unexpectedly in installations which appear sound and excellent in every way when first installed. These failures are of the fatigue type. The fatigue of metals is a phenomenon now generally recognized by engineers. Some classes of alloys are more subject than others to the development of fatigue weakness under continued or repeated stress. The action involves crystalline changes and can not always be foreseen and prevented. Where fatigue may be encountered it is safer to select a metal whose freedom from fatigue failure is established.

After long service tie rods frequently will show a roughened surface but apparently will be of full original diameter and not appreciably reduced in cross section by the corrosion. The rod will suddenly break. On examination it will be found that there is a small core of the original bronze surrounded by a thick walled jacket of dull appearing metal. This jacket is composed of cemented metal, deposited layer by layer through galvanic action. It is deposited from solution in the same way that electroplating or electrodeposition is accomplished. This cemented metal has practically no mechanical strength in tension. Although the rod apparently is of original cross section the effective cross section is only that of the as-yet-uncorroded core. The tendency of alloys to cement out in this way depends upon the composition and a number of complicated conditions of service.

Where the alloys contain in their composition metals of the less noble class, the tendency of the lower metal to go into solution with resultant plating out of the copper as cement copper is probably greater than where the lower metals are not present. This action involves the same chemical principle that is the basis of the protection of steel and iron with zinc. Where the metals of the class of zinc and aluminum are present in the alloy in appreciable amounts, the tendency to displace copper from the solution with the consequent formation of a cemented jacket about a constantly diminishing core of alloy is great. This is one of the reasons that the alloys containing nothing but the more noble metals, such as copper-tin and copper-nickel are superior in the long run alloys containing zinc or aluminum.

Tie rods, which show practically no corrosion and are as good as new throughout their length, frequently are rejected for the reason that the machined threads on the ends have been eaten away and will no longer retain a nut. If the rod is not long enough to be cut down to a shorter useful length it must be thrown away The cutting at the threads is simple corrosion aggravated and accelerated by some of the conditions of pickling service. Certain remedial measures can be taken to overcome this in addition to the precaution of choosing rods of corrosion resistant metal. The corrosion of the threads at a rate which causes their destruction while the body of the rod is still good, is contributed to by the fact that the area of surface of the thread that is exposed to the acid in relation to the cross section of metal forming the thread is relatively high. This is particularly the case where a sharp V-thread is used. Threads should be cut carefully so that the full amount of metal is left in the thread by the die. If heavy section threads can be used conveniently this is even better. On smaller tie rods this natural weakness of threads against corrosion is even more aggravated than in larger rods. In the latter case a fairly massive thread can be used. This detail should be borne in mind in choosing the proper size tie rod.

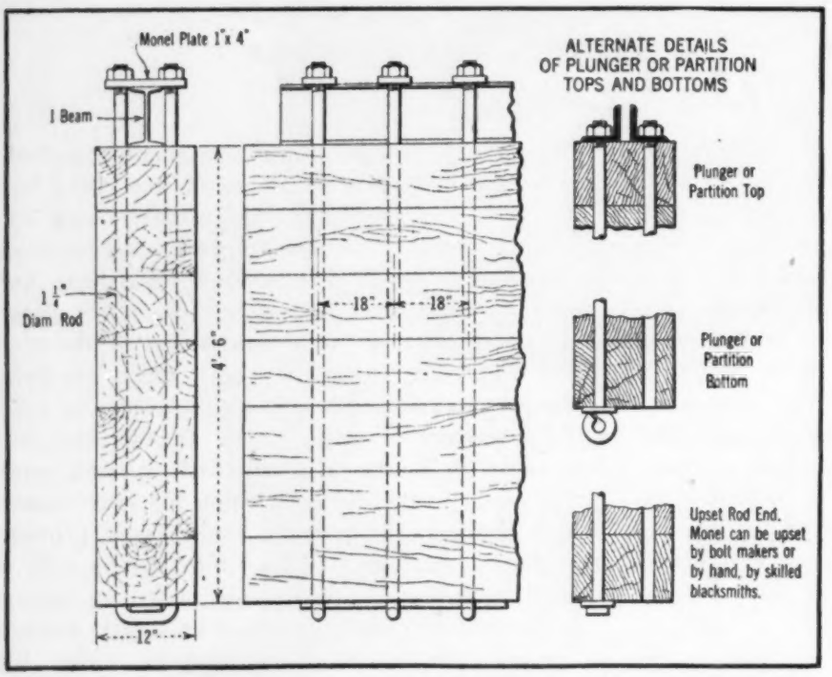

Monel Plate 1"x 4"
I Beam
1 1/4" Diam Rod
18"
18"
4'-6"
12"
ALTERNATE DETAILS OF PLUNGER OR PARTITION TOPS AND BOTTOMS
Plunger or Partition Top
Plunger or Partition Bottom
Upset Rod End. Monel can be upset by bolt makers or by hand, by skilled blacksmiths.

FIG. 5—DETAIL OF CONSTRUCTION OF PLUNGERS FOR SHEET MILL PICKLING VATS

Clean Surfaces Corrode Most

The working of a loose nut on a thread through vibration of any sort speeds up the corrosion of the threaded ends. Movement of one surface over another cleans the surfaces and continually exposes bright metal to the acid. The corrosion unquestionably is faster where rubbing of this sort takes place. Carefully fitted nuts should be used and the nuts should be maintained tight at all times. Regular inspection and tightening of nuts should be part of the routine of the pickling department. This not only prolongs the life of the threaded ends but insures tightness and, consequently, prevention of losses through acid leakage, rod destruction and timber destruction. The threaded rod ends and nuts usually are in exposed positions where they are splashed with acid. This

is a contributing cause to the more rapid corrosion of the threads than the rod as a whole. Mechanical means can be used in some measure to protect against splash on the tie rod ends.

If the nuts and washers are countersunk into the timbers the wells can be filled with a neutral grease which is solid at the temperatures used. Hotneck grease has been used. Care should be taken not to trap acid when packing the wells and the presence of the grease should not offer an excuse for failing to regularly tighten the nuts. If the nuts are not to be countersunk it is feasible to fasten caps over the projecting rod ends and nuts. These caps can be filled with grease and will protect the threads and nuts. It is always well to use extra thick nuts so that many turns of the thread are covered by the nut. The threads near the center of the nut will be better protected and will outlast the outside threads. By use of a thick nut several threads near the center will be protected.

Fairly large washers should be used to give a good bearing on the timber. Square washers are as effective as round washers and can be punched at low cost from flat bars of rolled metal. In some cases instead of using individual washers on each rod, several rods are put through a flat bar of acid resistant metal drilled or punched at the proper spacing, this gives added support to the timbers and in a measure distributes the pull of all the tie rods so that if one works a little loose the other rods that are pulled up on the same bar will carry the load of the loose bar until it is tightened at the next routine overhauling. The use of washers cut from rolled bar of acid resistant metal gives the advantage of the superior properties of rolled or forged metal over cast metal in corrosion insistence.

FIG. 8—FORGED ACID RESISTANT METAL HOOKS FOR LIFTING SHEET MILL RACKS

For even the largest tanks it is rarely necessary to use acid resistant metal in larger size than 1¼ inches round for the tie rods. For particular reasons some plants use up to 1½ inches but in general for the long tanks used for pickling tubes, shapes or rods and for the sheet mill plunger agitated tanks, 1¼ inches diameter round is amply strong. The tie rods or plunger agitated sheet mill tanks are subjected to more severe stresses than any other class of rods. For small sheet mill tanks, large sheet mill tanks, not plunger agitated, and for tin mill tanks, wire rod tanks, etc., 1 or 1⅛ inches rods are used. The user of small tanks such as in hollow ware, stamping and enameling plants, etc., can use tie rods as small as ¾ inch diameter. It is doubtful if any true economy is had in using any tie rod smaller than ¾-inch diameter even in small tanks because the threads at the ends become so small that they are too quickly eaten below the holding point.

Rods Can Be Used Again

For sheet mill tanks the use of 1¼ inches diameter rounds is most economical. In addition to giving the necessary strength for holding the tank tight and leak proof, rods of this size eventually may be utilized as rack pins for which the 1¼ inches size practically is standard in sheet mills. As has been stated the majority of the tie rods used in properly maintained tanks are only slightly corroded throughout their length but must be rejected when the threaded ends are gone. If too short to be cut down to bolt in another direction in the tank they can be converted into rack pins.

Sheet mill tank tie rods of acid resistant metal often can be used in a second tank. Some rods from the bottoms of tanks especially where drainage is poor, and rods from the plungers and partitions of plunger-agitated tanks may not be in condition to outlast the second set of timbers. The end and side rods often will. The ends on a small diameter rod have been rethreaded but this, of course, reduces the effective cross section and limits the total load that the rod will bear. It is probably not a safe practice unless the original rod is amply over size for the load it is to carry.

The plungers and partitions of sheet mill plunger-agitated tanks always have been the most difficult parts to hold bolted or tied together. The surge of the liquor subjects the plungers to repeated stresses and shocks in every direction. Air, sucked into the liquor, increases its power to dissolve metal. As a result of these special conditions the holding of plungers and partitions has been a source of trouble. If the bolts are run through the plungers and partition timbers and held by a washer and nut at the bottom, the vibration and surge of air saturated acid rapidly corrodes the lower ends at the threads and the nuts fall off. Of recent years an improved method of bolting these plungers and partitions has prevented corrosive action.

FIG. 7—END OF BROKEN ROD SHOWING EFFECTS OF CEMENTATION CORROSION

Long rods of acid resistant metal are bent into the form of a hairpin and passed through pairs of holes bored in the timbers so that the closed end is at the bottom of the plunger or partition. Usually a flat bar is laid along the bottom of the lowest timber, between it and the hairpin bolts. This distributes the bearing. The open ends of the hairpin, which have been threaded before bending, pass through the top of the upper timber and are fastened through a plate or washer by nuts. Plates used on the plungers as washers are bridged across the I-beam which carries the plunger. This device is shown in the sketch.

Where this hairpin bolt is used it is possible to tighten up the plunger and partitions from above without the necessity of holding a wrench at the wet and slippery bottom of the tanks. The severe corrosive conditions at the plunger bottom will of course cause the hairpin bolts to be attacked more rapidly than any other tie rods in the tank, but because of the high unit strength and uniformity of rolled acid resistant metal rods they will continue to hold until worn to a small cross section. The cross section at which these bolts will break or release the tightness of the plungers is much less than that at which the same rods would drop their nuts through corrosion of the threads if threaded at the lower ends. If 1¼-inch rounds are used when the hairpin is cut through the halves can be made into rack pins.

(To Be Continued)

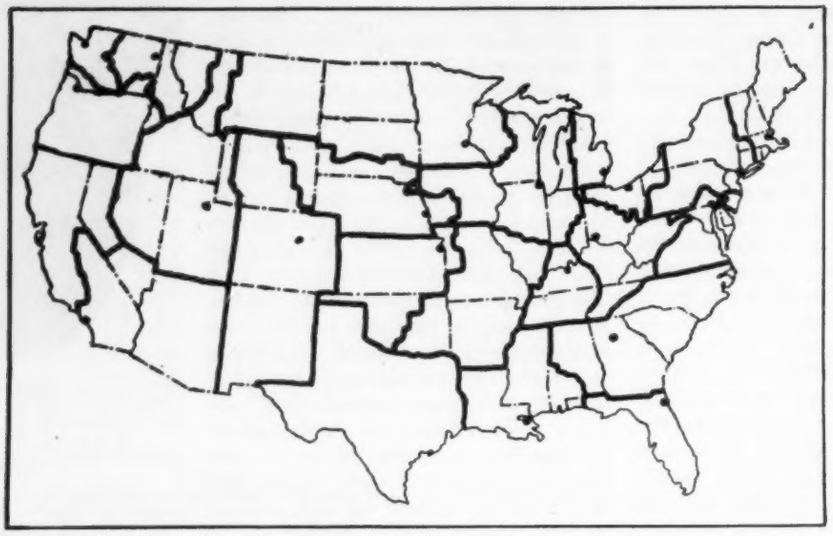


Fig. 1—Layout of selling territories of a seller of metal products

Build Sales by Improving Layout of Selling Territories

By G. E. Bittner

THAT many sales managers follow the path of least resistance in laying out sales territories is evident from an examination of a number of sales maps. The groupings often indicate that in their judgment the problem amounts merely to taking a map of the United States, drawing red pencil lines around certain states, or groups of states, inserting therein the salesman's name, and calling the task completed. Such a plan deserves no commendation and can not be expected to bring paying results.

Every commodity requires a plan peculiarly its own. In all cases it is necessary to recognize the determining factors and give them proper consideration and weight, to keep always in mind the fundamental purpose of the plan, and to work down to basic facts. It is only by such methods of intensive study and analysis that the problems inherent in our complex system of distribution can be successfully solved.

No hard and fast rules can be laid down for delimiting sales areas. They vary with commodities and with the desire of a firm to cultivate certain areas intensively. In general, sales territories should be planned with an accurate knowledge of the ability of the salesman or salesmen that are to work them. It is usually advantageous to have a salesman live in his territory and work it from some dominating city from which he is able to travel readily in any direction. A territory wherein a man may work back and forth without retracing his steps is usually an economical one to cover.

All this seems very simple, yet an examination of a number of sales territory plans shows that these fundamental facts are not being given the consideration they deserve.

It is interesting to see how some sales managers are solving this problem for their respective houses in the United States. These men, who have given the problem time and intelligent study and thought, have proceeded with a clearly defined purpose to cover the country in an organized way, to make exact comparisons with other territories, to match as far as possible the opportunities with the salesmen's abilities, and to meet competition effectively.

In New England we find one house taking Maine, New Hampshire, eastern Massachusetts, and Rhode Island as one territory. This can all be covered easily from Boston in a night's ride on the train. Another adds eastern Vermont, all Massachusetts except the extreme western part, and Connecticut as far west as New Haven. This house also covers New Brunswick, Nova Scotia, and Newfoundland from Boston. Still another, using larger territories, includes that part of New York state bordering New England, for the salesman can readily cross the state lines as he works up or down this territory.

Boston, as is the case with the other important cities, is frequently a territory in itself. In addition, it may be a branch house location or a distributing center for adjacent or nearby territories. Boston, in another instance, is evidently the starting point of a high-class or "star" salesman who slips across to Springfield, thence to Albany, Syracuse, Buffalo, down to Pittsburgh, up to Cleveland by way of Akron, then moves south, touching cities in Ohio, Kentucky, and Tennessee, into Georgia and Florida, and gradually works back to Boston through the eastern seaboard. This salesman, covering a vast territory, is concerned only with the cream of the business.

New York city, with varying amounts of surrounding territory, is usually handled independently of the rest of New York state. New York state is so covered with railroads that it lends itself to almost any type of treatment, but one good method is to include Buffalo, Dunkirk, Erie, and northwestern Pennsylvania towns, such as Corry, Warren, and Bradford, in New York territory, either as separate subdivisions if working intensively, or as part of western New York state if working less closely.

Northern New Jersey is usually included in New York city territory, and southern New Jersey is frequently worked from Philadelphia. An ideal plan for a certain article divides New York into four parts, and the salesman works from Buffalo, Rochester, Syracuse, and New York city, generally moving up and down the state.

In another instance we find the west-

ern portion of New York tied in with Ohio and most of Michigan. There is no connecting link between New York and Ohio, but the tip of Pennsylvania along Lake Erie will form this link and also will supply some profitable territory. The branch-house location appears to be at the extreme eastern part of the New York portion, but a more suitable location would seem to be near Toledo or Detroit, as this would enable the house to distribute in all directions and even take care of adjacent parts of Canada. Pennsylvania, with its complete covering of railroads, can be handled in a number of different ways. One that is favored by many houses is to include northern towns with adjacent New York territory. The eastern part of the state, the southern half of New Jersey, Delaware, Maryland, and the District of Columbia can be reached easily from Philadelphia. From Pittsburgh it is possible to go east to Harrisburg, south to Cumberland and Harpers Ferry, and into Ohio as far as Akron. The peninsula including the eastern part of Maryland, Delaware, and a little of Virginia requires careful planning and the considering of the automobile or bus as an adjunct to the railroad to avoid stranding the salesman in unprofitable territory.

A bus route which parallels the railroad may frequently be used, taking advantage of a schedule which may fit in between trains and save several hours layover. Wholly apart from this particular territory, the use of bus lines should be carefully considered in planning all sales areas.

Southern Ohio, West Virginia, and part of Kentucky are frequently worked as one territory. The salesman covering northern Ohio and northern Indiana can also include southern Michigan. Here, again, a "star" salesman can be used advantageously, if he travels in an eastern instead of southern direction, and makes such towns as Buffalo, Cleveland, Toledo, Detroit, Cincinnati, Columbus, Pittsburgh, Washington, Baltimore, Philadelphia, New York, Albany, and Syracuse. A "star" salesman traveling in this way is expensive. He is a high-salaried man, and because of comparatively long jumps between towns his traveling expenses are high. Arrangements must be carefully made not to discourage other salesmen in whose territory these large cities lie. At the same time, houses using this "star" salesman method find it satisfactory, since it puts a high-class man into every big city.

In the southern states numerous treatments are possible. Western West Virginia with a portion of Ohio and Maryland, may well be worked in part from Baltimore or Philadelphia. From Washington railroads run to all parts of Virginia and the southeastern part of West Virginia, therefore bringing Bluefield, Hinton, and other towns in that locality into Virginia territory. These railroads will permit working the Carolinas and the eastern end of Tennessee, avoiding however, getting too close to Knoxville. Knoxville is another good point from which to cover surrounding territory. The territory west of Knoxville is well served by railroads, and this district may be covered by a man making Cincinnati, Louisville, Nashville, and Chatanooga. If this man is a "star" salesman, he will probably continue farther south, taking in Birmingham, Montgomery, Atlanta, and perhaps Jacksonville, Savannah, Charleston, and Columbia, S. C. State boundaries in the South can at times be disregarded to advantage. For example, a salesman left in Augusta, Ga., with three or four hours on his hands between trains can readily take the electric cars to Aiken, S. C., and canvass the trade there.

The Carolinas in one instance are worked in with Georgia. Several men are assigned to this territory and their routes are so designed that at times they appear to overlap one another yet cause no waste of time or money.

Florida is usually traveled in conjunction with Georgia, and a salesman may either go in by Jacksonville and come out the same way, or he may come out by Tallahassee and Pensaloca and then cover Alabama. Alabama is well served by railroads radiating from Birminghm and Montgomery and can be divided with one man working from Birmingham and one from Montgomery, or it can be covered by one man.

Mississippi can be covered by one man, for it contains a network of railroad lines centered at Jackson, making it possible to travel in almost any direction. A man can cover it as a separate territory if he is working intensively, or it can be covered by men from Birmingham, Mobile, Memphis, and New Orleans. Memphis itself may be covered by a "star" salesman on his way from

Haphazard Plans Impair Salesmen's Efforts

ONE link in the chain of selling costs—planning of salesmen's territories—has in many cases been a member which weakens the entire structure of otherwise efficient and productive sales departments. The weakness of this one link is usually due to the lack of fair and equitable layout of sales territories.

Manufacturers and distributers alike have had to cope with this problem. The ones who have met it successfully have considered the various controlling factors, while others have allocated sales territories in haphazard, casual fashion and given the matter very little time or attention, largely owing to the fact that they were not familiar with the essential elements. The purpose of this study is to point out apparent weaknesses and to suggest ways of strengthening this one link.

Helpful co-operation has been given by manufacturers and distributers in furnishing data and sales maps in actual use. The accompanying analysis has been made by G. E. Bittner, of the domestic commerce division, under the supervision of Henry H. Morse, former chief of the division, who prior to his connection with the department of commerce, was for a number of years a sales and export manager.

JULIUS KLEIN, *director,*
Bureau of Foreign and Domestic Commerce.

Gain by Using Motorcars

THE list of houses using automobiles is constantly growing, as in certain lines of business this means of transportation is practically indispensable. One house states that by the use of an automobile a man can each day visit two to four towns, 50 to 100 miles apart, while he could make only one or two towns by train. Another house states that motor transportation is an efficient method of covering certain classes of territory if the territory is analyzed, so that the automobile will be used primarily for short-haul routes where other transportation is impractical. A third house has its salesmen in a densely populated section cover its sales territory in automobiles. The routing is planned to keep the men at work in territory where they can most conveniently reach their homes, thus reducing hotel bills and keeping the men contented.

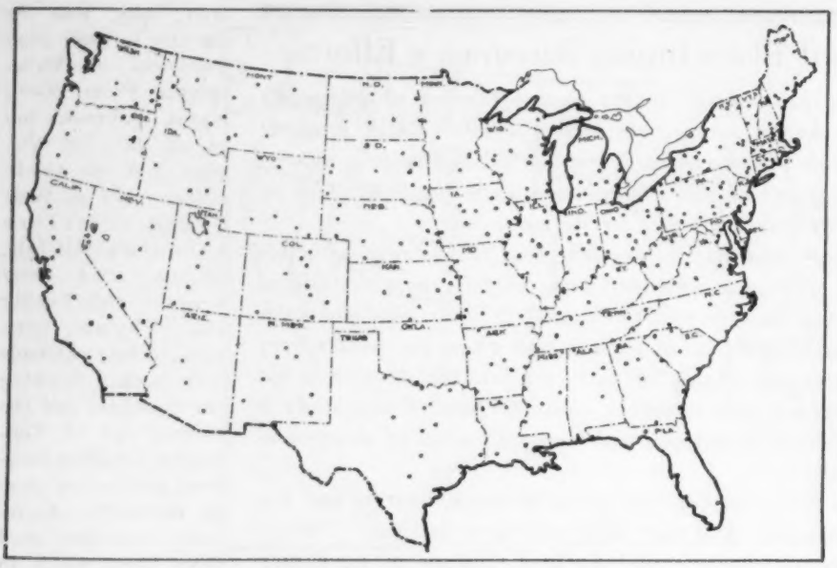


FIG. 2—MAP SHOWING LOCATION OF PRINCIPAL CITIES OF THE UNITED STATES CONSIDERED IN SELLING PLANS

St. Louis to New Orleans, or it may be worked in conjunction with Nashville and Little Rock.

Arkansas and Louisiana are usually covered from the states to the east. Missouri, with St. Louis on the east, Kansas City on the west, and good cities and railroads all through the state, can be planned in a number of ways. At times Missouri is divided between Illinois and Kansas. Illinois is covered from Indianapolis, Chicago, or St. Louis, or from all three.

Chicago is ordinarily worked as an individual territory, in addition to being a headquarters location. Wisconsin can be worked from Chicago, and with Wisconsin should be included the northern peninsula of Michigan. In the northern part of the state the trunk lines run principally east and west, and salesmen covering Superior and Duluth may make Winnipeg and Regina, and returning may make Grand Forks, Fargo, and the Twin Cities. Another route might take him from Duluth to Grand Forks, and if the trip is to be a long one and he is not working the territory too closely he can go to Helena, Mont., Butte, Miles City, Aberdeen, and back to Minneapolis and St. Paul, making as many or as few of the towns in that territory as the commodity he is selling makes advisable.

The Twin Cities constitute a logical point from which to work Minnesota. The eastern half of the Dakotas may be covered from the same point. Iowa can be covered in almost any way that fits in with the plans for the neighboring states and is at times worked east and west. Nebraska can be worked satisfactorily east and west, especially as this is the best way to get into Wyoming. From Kansas City and Topeka a salesman may work southwest into Oklahoma and northern Texas, and even into southern Texas, unless Houston and Galveston are included with Louisiana territory, as is frequently done, Kansas is another state that is best worked east and west. From Kansas a man may readily work westward into Colorado or down into Oklahoma. Oklahoma may be worked independently from Guthrie or Tulsa.

Colorado may be covered by a man working over from Omaha. Denver, however, appears to be the best place from which to work the state from within, possibly including Cheyenne and nearby towns, also parts of Nebraska, Kansas, and New Mexico.

Utah frequently is given to a salesman working south from Idaho, or working south from Idaho, or working out from San Francisco or Los Angeles, or it may be worked from Salt Lake City. Parts of Wyoming and Idaho can be reached easily from Salt Lake City. Nevada can best be covered by salesmen from Salt Lake City or San Francisco. Eastern Oregon and eastern Washington might be part of the circuit starting at Spokane, swing down through Boise and up through Butte, Mont., while Portland, Oreg., will take care of the Pacific coast from Canada as far south as California. Seattle would be the headquarters for a man covering that city as well as Vancouver, Prince Rupert, and points in Alaska.

El Paso, Tex., usually is included with New Mexico rather than with Texas, and can be worked from Los Angeles, Phoenix, and Tucson. California can be amply covered by one man from San Francisco and one from Los Angeles. One house sends out two men on a complete circuit beginning with San Francisco, passing through Reno, Ogden, Salt Lake City, Cheyenne, Denver, Albuquerque, El Paso, Phoenix, Los Angeles, and back to San Francisco. These men probably work in opposite directions on the circuit, each having his own towns in addition to those mentioned, although the larger towns are worked by both.

In a number of instances, we find the Canadian provinces worked from within. This is particularly noticeable in handling commodities which are subject to a high tariff. In such instances a branch factory is frequently established in Canada. The salesman might then follow a route beginning at Winnipeg, touching Brandon, Regina, Moose Jaw, Medicine Hat, Calgary, Nelson, and other towns, turning at Vancouver and returning by way of Edmonton and Prince Albert. Of course, numerous other towns can be covered on this circuit.

Taking up again the "star" salesman, whom we left working south from St. Louis, we find he can be used in working from St. Louis westward through Kansas City, up through St. Joseph, Omaha, and Sioux City to Minneapolis, and back by way of Indianapolis and Terre Haute to St. Louis. Giving him an increased territory, we might include

(*Concluded on Page* 943)

Selling in the Arctic Circle

ONE house covers Alaska working out from Seattle once a year. The territory had to be laid out with utter disregard for boundary lines. One salesman makes his headquarters in Juneau and covers the southeast and southwest sections of Alaska. The other salesman goes into the interior with his dog team, covering a route totaling 4000 *miles and making a trip in the dead of winter that takes him* 18 *miles into the Arctic circle. For* 90 *days he drives his dogs over the trails and passes over dangerous rivers and lakes, to the small settlements or roadhouses where he meets his customers. He leaves Kobe, a small station on the Alaska railroad, drives westward to Iditarod, then, swinging in a circle, he follows the tributary rivers of the Yukon to Fort Yukon, which is on the Arctic circle; thence his course is to Circle and down to Fairbanks on the railroad, a short distance from the starting point. He returns to Juneau for more supplies, leaves by boat for Skagway, then goes by rail to White Horse, Canada, and on to Eagle, the first American port on the Yukon River. At that point he boards his own launch, which is shipped from Juneau each year, and travels along the Yukon river, through the very heart of Alaska, into St. Michaels at the mouth of the river. This trip covers* 2200 *miles. From St. Michaels he goes by boat to Nome, and thence back to Seattle.*

Salvaging Header Dies Affords Larger Unit Production

By Arthur L. Greene

Fig. 1—Machine for threading track bolts. The roll threading dies shown in Fig. 4 are used in machine

SIMPLICITY of design influences the value of automatic and semiautomatic machines. Governed to a large extent by this factor of simplicity will be the number of repairs necessary and the ease and quickness with which such repairs can be made. Practically the same criterion can be employed in judging the value of tools used with machines of this kind. If the tools are complicated in design and permit of few if any reworking operations, the manufacturer using them will be confronted with a rapidly accelerating item of expense in production.

The foregoing is particularly true in the case of large bolt and nut manufacturing plants, where large numbers of automatic and semiautomatic machines perform various operations of forging, upsetting, crowning, pointing, trimming, tapping and threading. To keep these machines in operation involves the constant daily use and manufacture of hundreds of different tools; and a large number of tools must be replaced and reworked as they become worn. Tool costs, therefore, play an important part in the final cost of the product. Depending on the machines themselves and on the type, the design and efficiency of the tools used, will hinge much of the completed cost of the bolt and nut.

The truth of the foregoing is self-evident. At the same time, few appreciate the simplicity in design and operation of many of the tools used with automatic and semiautomatic machines in bolt and nut manufacturing; a simplicity that largely is responsible for present day low unit cost of bolts and nuts. A series of tools or dies used and made at the plant of the Buffalo Bolt Co., North Tonawanda, N. Y. for cold working small sized nuts is shown in Fig. 3, a pair of roll threader dies and a pair of header dies in Fig. 4, and a threader machine, in which the roll threader dies are used for forming the neck and head on a forged bolt, is shown in Fig. 1. The cold working tools shown in Fig. 3 from left to right, include a piercing punch, piercing die, cut-off punch, cut-off die, crowning die and trimming die. These tools, it will be noted, are exceedingly simple in design.

The author, Arthur L. Greene, is associated with the Buffalo Bolt Co., North Tonawanda, N. Y.

Tool Steel Is Used

The piercing punch shown in Fig. 3 consists of a small, tool steel, hardened bar with the piercing end tapered for cutting purposes to the size hole desired in the nut. A notch in the shank end provides a bearing surface for the set-screw holding the tool. Machining of these punches is entirely automatic in character. A screw machine is employed for the purpose. The stock material from which the tool is made consists of a round bar of steel about 12 feet long. This is inserted in the chuck opening and is fed automatically into the machine. The end of the stock first is milled to the shape and size desired with a circular forming tool, and then is cut off automatically to the length desired.

The piercing die shown in Fig. 3 likewise is made of a round bar of hardened tool steel. This tool has a slightly raised flange on the inside bearing surface and a tapered hole bored through the center which provides for disposal of the punched out slugs. Machining of this tool is rapid. The material after being turned down to size and cut off to length is bored and the hole tapered.

The cut-off punch designated *C* in Fig. 3 is made of alloy steel, hardened and tempered, the outer dimension conforming in shape and size to the nut to be punched; that is, if it is a square shaped nut, the punch will be square in shape; if a hexagon nut, the punch likewise will be hexagon in shape. Through the center of the punch, a hole is drilled on a special rifle boring machine in which the pilot pin for holding the nut is placed. The material from which these cut-off punches are made usually is bought ready cut and machined to exact size and shape. All that remains to be done, therefore, is to bore the hole on the rifle boring machine. The tool, like all others here described, is hardened following machining operations.

The cut-off die, operating in conjunction with the cut-off punch consists merely of a round shaped piece of hardened tool steel in the center of which is an opening conforming to the shape of the nut being made. The cut-off die shown in Fig. 3 is for use in making a square shaped nut. The opening itself is made to a 1½ degree taper on all sides, the inner or cutting edge being made to size with the taper extending to the rear of the die. In machining these dies, a hole first is bored in the piece of steel. Following this the hole is broached with a broaching tool to the size and shape

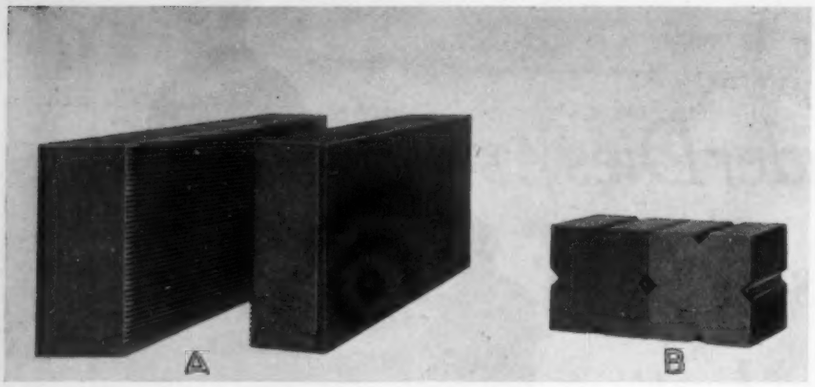


FIG. 2—PAIR OF THREADER DIES, A, AND PAIR OF HEADER DIES, B, WHICH HAVE BEEN REWORKED MANY TIMES

desired. The opening then is tapered and the tool is hardened.

A slight depression is made in the face of the die, as shown in Fig. 3, giving much the appearance of a shallow saucer with raised edges. This acts on the nut to give it a raised center while the outer edges are depressed, or as it is more commonly known, chamfered. In machining, the face of the die first is planed off, following which a forming tool is used to relieve the center area of the tool.

Regular Sequence Is Followed

The final operation on a cold worked nut is performed by the trimming die. The tool, as shown in Fig. 3, is rectangular in shape. Through the center is an opening of the exact size and shape which the finished nut will take. The opening has a slight taper of 1 degree per foot on each side in order to form a cutting edge and to allow the nut to pass through the die without forcing. The machining operations here are the same as with the cut-off die.

In operation these tools are placed in the machine exactly in the order in which they are shown. The piercing punch first pierces the bar material as it is fed into the machine. The cut-off punch next cuts off the material roughly to the shape desired. Continuing through the cut-off die opening the material is placed in front of the crowning die. The roughly cut nut is now crowned. The trimming die now moves upward on a slide to a position in front of the crowned nut, and the nut is forced through this die. It has now been trimmed to exact size and shape. The nut continues through the trimming die opening and drops down into a container placed under the machine.

Operation of these six dies in successive order is extremely rapid, as can be seen from the production figures for one of these cold nut machines over a period of 9 2/3 working hours. With a ¼-inch regular nut, either square or hexagon shaped, the output will average 45,000 to 50,000 nuts; with a slightly larger nut, say 5/16 inch in size, output will average 40,000 to 50,000 nuts.

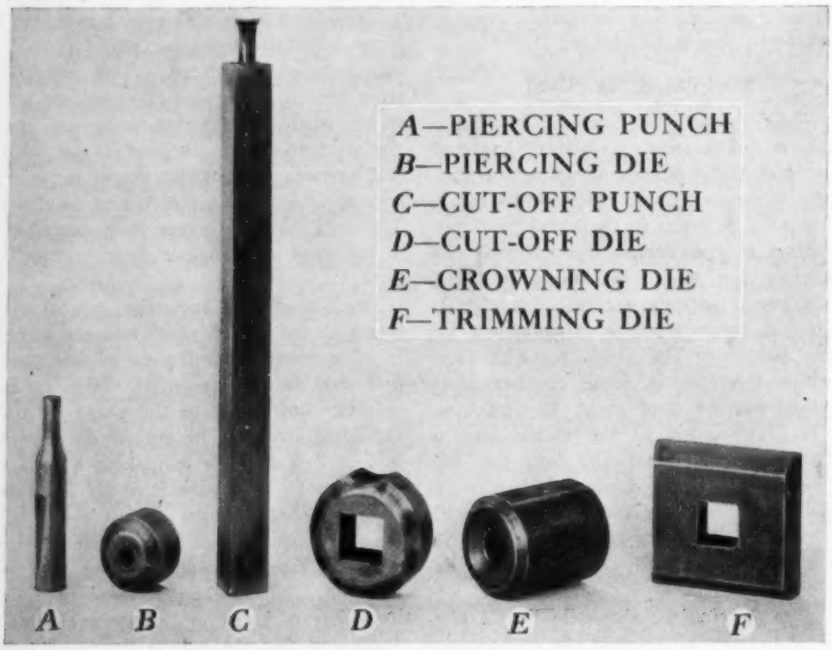


FIG. 3—A SERIES OF TOOLS OR DIES EMPLOYED FOR COLD WORKING SMALL SIZED NUTS

Salvaging operations are practiced with various bolt and nut manufacturing tools, and in this connection the roll threader dies and the pair of header dies shown in Fig. 2 have been reworked several times. The practice is to take the roll threader dies out of work when the threads have become worn below the limit tolerance allowed, and to remove sufficient surface material to permit a new thread to be cut. Reworking operations of this kind continue until the thinness of the die makes it impracticable to continue further reductions in the stock.

Tool Is Reworked

The header dies designated *B* in Fig. 2 originally were 5/16 x 6 inches. Because of wear and chipping of the neck groove, the die blocks were shortened, a new neck groove made, and the die then was ready for heading a 5/16 x 5½-inch bolt. Following a run of this size bolts, the groove in the die itself was found worn and in the reworking operation that followed, the tool was made into a ⅜ x 5-inch header die. Other reworking operations with this tool resulted in successive reductions to ⅜ x 4½ inches, 7/16 x 4 inches, 7/16 x 3½ inches and finally ½ x 3 inches. This one header die reworked six different times, with each new size being used for a separate run of bolts.

An extensive system of cost recording methods is employed to determine the value and advisability of a reworking operation for a particular tool. The cost management must always take into consideration the characteristics of the die, that is, its weight, size, length, the number of possible reworking operations and the probable length of service. With these facts it is possible to obtain a close approximate cost of the bolts per thousand and per unit. Knowing this and the cost of each die reworking operation, the sum of advantages or disadvantages of a salvaging operation in any one instance can be ascertained readily.

For example, cost records show an appreciable saving in making the small dies from alloy steel, while with the large dies, it is cheaper, from the standpoint of production costs, to make them of the lower-grade and less expensive steels. In other words where there is little if any opportunity for salvaging operations on the small die it is economy to indulge in a high initial cost for the tool to be assured of high production per run. If, as sometimes happens, a cheap steel is employed, the possibilities are that only a small run will be had

before the tool is worn or broken. This means a high cost per unit bolt despite the low initial cost of the die. As the realm of the larger tools and dies is entered, many opportunities for reworking and salvaging operations are presented and cost records show a decided advantage accuring from the use of the cheaper steels even though the production per die is appreciably smaller. Where it is possible for reworking operations, this cost of salvaging, as compared with the cost of a new tool, will always show a considerable percentage saving which, in most cases, averages above 50 per cent.

In bolt and nut manufacturing, the reclaiming of worn out tools is extended to many other phases of tool production. In Fig. 4, for example, are shown other tool specimens that frequently are reworked to obtain larger production per unit. These include a pair of cut threader dies; the plunger used with a header die for forming the head; and, a series of hot nut punching tools, namely a piercing punch, cut-off punch, follower and a three-piece die for holding the stock in the machine.

All tools previously described are used in one form or another in all bolt and nut manufacturing plants. They illustrate the simplicity of design incorporated and the methods of reworking operations followed in obtaining the largest production per tool. In doing this they demonstrate a phase of modern production, attention to which, largely is responsible for present low consumer cost of bolts and nuts.

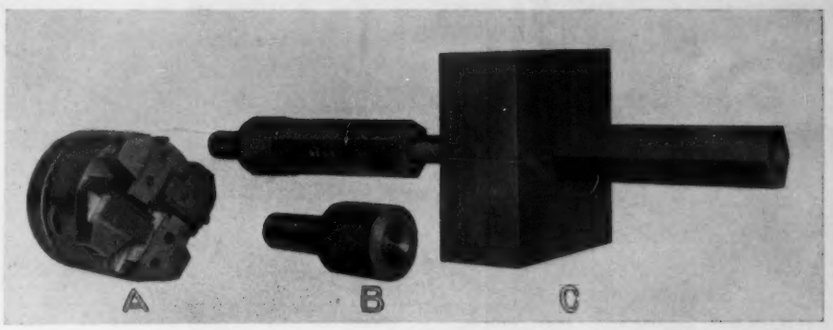


FIG. 4—A. FOUR-CUT THREADER DIES PLACED IN POSITION IN CHUCK READY FOR OPERATION. B, PLUNGER USED WITH A HEADER DIE. C, HOT NUT PUNCH TOOL AS IT APPEARS WHEN SET UP IN THE MACHINE

Improving the Layout of Sales Territories

(*Concluded from Page* 940)

Atlanta, Memphis, Mobile, New Orleans, Galveston, San Antonio, Fort Worth, Oklahoma, and Wichita.

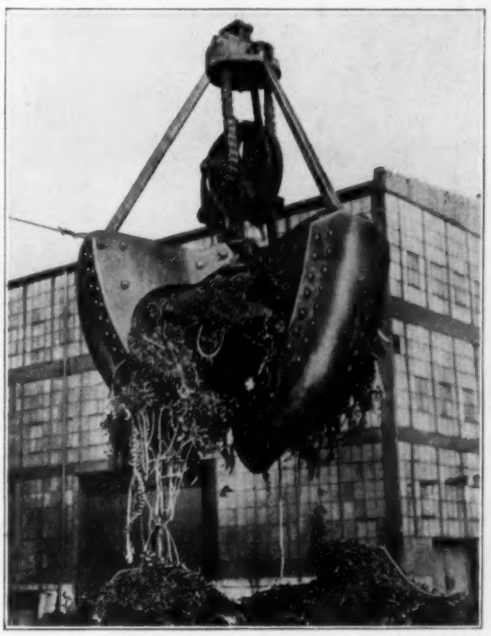
Another "star" salesman might start out now from Chicago, go through Minneapolis, out to Seattle, down to San Francisco, and back, touching Ogden Denver, St. Joseph, and St. Louis. This man, however, would have to be a person of exceptional ability or such a trip would not pay.

Intelligent disregard of state lines as boundaries in the treatment of territories is shown in Fig. 1. Railroads or natural boundaries predominate throughout this plan. The house which uses it manufactures a wide variety of metal products and has a more uniform distribution of consumers, with the result that the territories are more uniform when figured on a basis of population. Fig. 2 shows a general map, with location of principal cities figuring in sales efforts.

The statement has been made that many factors govern the layout of sales territories. It is interesting to learn of those which influenced certain sales plans. The creation of boundary lines for sales territories by one house was the result of a study of markets, competition, and, in many cases, of past performance and sales, taking into consideration the industrial activities, the nature and density of the population, bank clearings, and such factors. The industrial activity of the United States is largely confined to the states north of the Ohio river and east of the Mississippi. In other words, 80 per cent of the industrial activity is in the states of Illinois, Indiana, southern Michigan, southern Wisconsin, Ohio, Pennsylvania, Maryland, Delaware, New Jersey, New York, and the New England group. Industrial activity does not mean the raising of cotton, wheat, etc., or mining, but refers to that section containing the largest number of smokestacks.

After a seemingly satisfactory division of territory is determined, there is the question of assigning men to take care of it and the adoption of a routing system which will result in a regular rotation of calls and a classification of customers, some of which are to be seen at short intervals and others less frequently. Consideration is given to the work of two or more men covering the same field in identical or closely related lines. The question of flexibility also arises. Territories are constantly being arranged and rearranged, and no hard-and-fast arrangement is feasible. It is possible that one salesman may have too much to do, and another, several territories removed, not enough. To adjust this would require that the intervening territories be juggled more or less to absorb such a disparity.

Orange Peel Bucket Handles Turnings



TO MEET the demand for an equipment which will handle scrap turnings mechanically, the McMyler-Interstate Co., Bedford, O., has perfected an orange peel bucket of special design. From the accompanying illustration it will be seen that the blades are forced into the material by the weight of the bucket. The chain operated closing mechanism insures a full load regardless of how tightly the turnings are packed. The bucket weighs 3700 pounds and is designed for use on cranes of the usual size found at industrial plants and retail scrap yards.

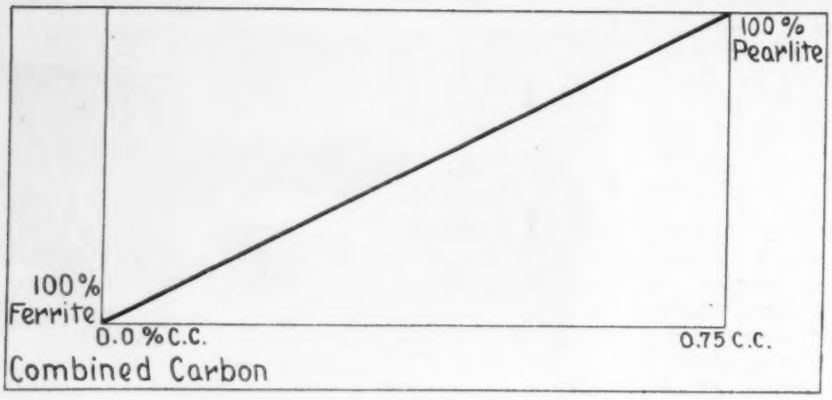


Fig 1—Diagram showing the change from ferrite to Pearlite—Carbon ranging from 0.0 to 0.75 per cent

Carbon Control Gages Strength

By James Ward

WITHIN the last two years the attention of American foundrymen has been directed toward the new German product, pearlitic cast iron. The process for making this metal was patented by Diefenthaler and is contained in American patent No. 1,502,983. Among the properties claimed for this iron are high tensile strength, ready machinability, ability to withstand a certain amount of deformation and considerable capacity for resisting shock. It also is claimed that smaller risers are needed in casting the metal. Pearlitic iron is essentially a gray iron of special analysis cast under special cooling conditions. Clear understanding of the nature and properties of this metal neecssitates consideration of peculiarities of its structural make-up.

Pearlitic iron, in the broader sense, is not new in America. The nature and production of pearlitic irons have been known for many years. The pearlitic iron of the Germans is not merely a pearlitic iron, but is a special pearlitic iron of rather low carbon content.

Pearlite was given its name by the late Prof. H. M. Howe. This investigator noted the resemblance of the iridescence of the lightly etched surface of a carefully polished sample of an annealed 0.90 per cent carbon steel to the sheen of mother of pearl. Structurally speaking, pearlite is the laminar eutectoid of ferrite or structurally pure iron and cementite. The chemical term is iron carbide, represented by the formula Fe_3C.

Energy Transfer Made Clear

When examined under a high power miscroscope, an annealed and etched 0.90 per cent carbon steel is seen to consist of innumerable thin layers or laminae as shown in Fig. 2. Metallographists have found that these layers consist of alternate strips of ferrite and cementite, in the ratio of 87 parts ferrite to 13 parts cemenite, or 0.90 parts carbon to 99.10 parts of iron. The term eutectoid indicates an intimate mixture of constant composition formed at a definite temperature in the solid state with the evolution of heat, and referred to as energy transfer. Below 0.90 per cent carbon, free ferrite makes its appearance and surrounds the grains of pearlite. At zero carbon the iron is wholly ferritic as shown in Fig. 3. These changes are indicated in Fig. 1. Above 0.90 per cent carbon free cementite is found. In steel this cementite is found surrounding the grains of ferrite. In cast iron it is found as eutectic cementite in ledeburite and in hypoeutectic cementite, this latter form usually being found as dendritic formations.

Gray cast irons are related closely to steel in their structural make-up. Steel under 0.90 per cent carbon is ferrite and pearlite. Gray iron under 0.75 per cent combined carbon has a matrix of ferrite and pearlite, the remainder of the carbon occurring as graphite flakes. Cast irons containing about 0.75 per cent combined carbon are pearlitic irons. The amount of carbon required for the eutectoid in gray iron is less than that required in steels, since the iron matrix occupies only about 90 per cent of the volume graphite occupying the remainder. Thus if the matrix is 0.90 per cent carbon at eutectoid composition, the sample may average 0.80 per cent combined carbon.

All high test irons are pearlitic or nearly pearlitic but the converse is not true. Irons of high graphite content or having coarse grain structure may have a pearlitic matrix, yet be weak. These facts were pointed out a number of years ago by Prof. Howe and by Prof. Sauveur, and has been generally discussed.

The German product owes its properties to the combination of pearlitic matrix, low carbon, hence low graphite

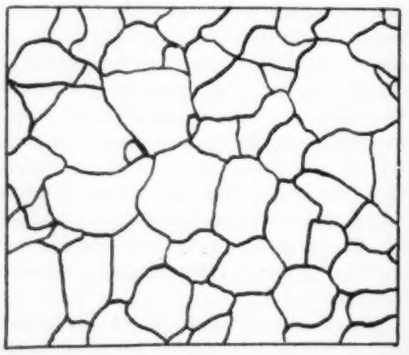


Fig. 2—Left Structure of Pearlite or Iron Carbide FeC_2. Fig. 3—Right—Structure of Ferrite or Pure Iron

content, and small grain size. The specified analysis is as follows:

	Per cent
Total carbon	2.80 to 3.00
Graphite	1.95 to 2.15
Combined carbon	0.75 to 0.85
Silicon	0.80 to 1.00
Manganese	0.70
Sulphur	0.10
Phosphorus	0.40

It is seen readily that this is not an analysis of common cupola iron. The total carbon content is lower than that ordinarily attained in the cupola. This analysis is specified for light sections, yet the silicon is quite low. This necessitates pouring the metal into heated molds. A pearlitic matrix is formed as indicated by the combined carbon. The graphite is low and the grain size small. The manganese, sulphur and phosphorus are in similar proportions as found in ordinary American practice.

The brinell hardness is around 180, the same as produced by strong American irons. The tensile strength given is about 25 per cent higher than that of the best grades of high test iron. The most striking difference in properties is revealed in the alternating impact test, the pearlitic iron apparently having over three times more resistance to shock than found in the better grades of ordinary iron.

The foregoing explanation indicates the structure and some of the properties claimed for pearlitic irons. The following remarks and comparisons point out the limitations of the process and some comparisons with ordinary practice.

Uniform pearlitic irons cannot be produced in heavy sections because of the differences in cooling rates at various depths of section. Uniform cooling is essential to uniform structure, and this condition cannot be obtained in heavy sections. The best pearlitic iron is said to be crucible metal, cupola metal being inferior. By correct cupola practice and proper mixtures, it is possible to produce iron in sections up to 1-inch which will average 40,000 pounds tensile strength. Such iron will have carbon 3.0 to 3.20 and silicon 1.0 to 1.4 per cent. If crucible or air furnace iron must be used and poured into special heated molds to obtain 25 per cent increase in strength, a big price is being paid for a moderate advantage in strength. For many castings it is possible to produce great strength and wear resisting properties at much lower cost, namely through simple heat treatments.

Pearlitic iron is not a soft iron in the sense that this term is used by jobbing foundries. It readily is machinable, but is tough and cannot be hogged. In machinability it offers no advantages over ordinary high test irons. The use of smaller risers is an advantage which is gained largely through the process of heating the mold. Ability to withstand shock and deformation are interesting properties. It would require familiarity with all the intimate details of these particular tests to enable intelligent comment. It should be noted that phosphorus is fairly low. This tends to raise the values for deflection shock and machinability. German foundrymen evidently have not the phosphorus preferences of the English foundrymen.

The practice of heating molds is an old one, but generally has been used for the purpose of making a soft or ferritic casting. In this case the iron would be close gray if poured into a green mold, while more complete graphitization and retention of small grain are attained in the heated mold. The writer notes the British patent to H. Lantz for producing high strength iron in a heated mold. Pearlitic iron should resist deterioration from heat better than most irons, because of its low carbon and silicon content. Cast mottled iron may be graphitized to a pearlitic matrix and produce high strength.

Pearlitic iron is no mysterious product destined to revolutionize the foundry industry. It is a high grade metal produced under rigidly specified conditions, sometimes almost on a laboratory basis. The principles underlying its manufacture have been understood for many years by American metallographists.

Iron Bars Bring Cash on Delivery in East

AN OLD and important branch of the iron industry in the East which has prospered for many years and continues to thrive is the production of iron bars. There is so much business at the present time that some of the mills have more orders than they comfortably can fill. There always is some price cutting in the iron bar market, but conditions today are as firm as could be expected, and on the greater portion of current business a price of 2.40c base is being obtained. This is a delivered price, based on 2.10c, Pittsburgh, plus the freight of 34 cents per 100 pounds to New York, plus an additional charge of 6 cents to cover trucking of the material to the door of the consumer. To the 2.40c price are added the standard extras for size and quantity.

By iron bars is meant here not the bars made from puddled iron but the product made from scrap. A comparison of raw material costs and finished material selling prices in this industry is interesting. The raw material for these iron bars comprises exclusively scrap, including wrought pipe, spikes, bolts, nuts, ship plates, No. 1 yard wrought, wagon tires, motor truck rims, wagon axles, horseshoes and No. 1 railroad wrought. The prices on the cheapest of these grades now range around $14.50 per gross ton delivered at the bar mills and the prices on the highest grades are around $20. The average probably is not far from $16.50 per gross ton. As indicated above, the net price to the mills theoretically is $46.80 per net ton. The chances are that the net mill price actually is not any less than $45 per net ton. Figuring the scrap on a net ton basis, these figures show a spread of about $30 per ton between the price of the finished material and the cost of the scrap.

That is, there is a spread of $30 per net ton out of which to meet the payroll, pay for fuel and other materials and supplies, meet the overhead on the plant, and pay a profit. In this calculation, of course, it must be borne in mind that scrap prices now are unusually low.

Bar iron buyers in the metropolitan territory alone number several hundred. The bars are used extensively for the manufacture of all kinds of out-door and ornamental iron work, such as stair railings, fire escapes, door grilles, and irons, lighting fixtures, etc. Most of the buyers are individuals or small companies. To a good many the bars are sold on a cash on delivery basis; "no money no bars," says the truck driver. Some are given a cash discount for payment in 10 days. Practically all the bars are delivered by truck; it is rare that a car is loaded at the bar mills. When the truck drivers return for making their day's deliveries, they report to the cashier and turn over to him their collections of the day, a lot of frayed and greasy greenbacks of various denominations.

It thus is apparent that the bar trade in the East is along warehouse lines. In fact, a case developed about a week ago, where a buyer wanted a lot of bars of a certain size that day. He telephoned a mill and the latter immediately set up the right rolls, turned out the bars and delivered them by 5 oclock.

Cuyuna Ores More in Demand

In Ten Years Manganiferous Grades Have Become Important to Iron and Steel Industry—Low-silica, High-phosphorus Brown Ores Favored—Reserves Ample for Some Time

BY CARL ZAPFFE

A RISE in less than ten years from obscurity into great prominence economically, tersely summarizes the history and status of the Cuyuna manganiferous iron ores.

The Cuyuna district produces and ships mainly high-phosphorus iron ore, but the annual production of manganiferous iron ore is increasing rapidly and productions from individual mines are becoming more regular and more dependable as to grades and tonnages. This ore bids fair to become, shortly, the principal product of the district and is responsible for the present economic prominence of this district.

The district is large in area and ore has been found in many places. At present, the manganiferous ores are being taken from the part known as the north range, centering around Ironton, Riverton, Trommald, and Crosby villages.

The investigator must recognize at the outset that there are two kinds of manganiferous iron ores. The most important basis for a grouping is chemical composition, which determines different uses for the two kinds of ores. This division is easy to make because the ores are high or low in phosphorus and silica, and variable in the content of manganese and iron. In the deposits, the combinations are either high phosphorus and low silica or low phosphorus and high silica, the latter combination usually carrying the greater manganese content and the less moisture.

The ores may be grouped according to color. The Cuyuna ores are inherently a mixture of iron and manganese; the color suggests the probable content of the manganese, the color becoming darker and blacker as manganese increases. No "straight" manganese ore exists, barring specimen samples; Cuyuna ores are known as manganiferous iron ores and the unadulterated black color does not exist. Representative piles of ore range from brownish black or greenish black, for the low-phosphorus ore, to various shades of brown, for the high-phosphorus ore. The color is quite as determinative as is the chemical analysis and, for convenience, it is usual to speak of the ores as brown or black. The darker the color, the higher is the manganese content.

Black and Brown Ores

Each class of ore has been dominant at certain times. The first shipment of manganiferous iron ore was made in 1913; it amounted to 24,434 tons and was used in an experimental way and in small lots. In 1914, the European war excluded importations of manganese ores and alloys that had been dependable for decades. Furnace operators demanded substitutes approximating the usual foreign supplies and found the Cuyuna black ores the nearest to these. Under the stress of the times, the increased demand for iron and steel and the consequent industrial expansion, many black-ore properties were developed. This in turn created a larger output from the existing mines, brought into being many underground operations, and brought black ore deposits into prominence.

With the close of the war, these low-phosphorus ore substitutes were no longer desired, so the mines were shut down. Although these ores were produced and accepted under periods of stress and were rejected when the situation changed, they gave impetus to new ideas among consumers of ore, and the use of manganiferous iron ores in everyday furnace practice and the making of high-manganese pig iron became established facts. But since 1919, the adoption of the practice apparently was based on the condition that the ores should be low in silica content, available in large quantities, produced with regularity, and with little or no variation in composition, for that is the present status at the producing mines. That excluded the black ores and opened the field widely for the brown ores.

Since that date the development of open pit mines on brown-ore deposits and the production from established underground iron ore mines where these brown ores are abundant have progressed with increasing speed. It will require another season or two before the present known properties or mines will be developed to their best operating possibilities, and because of the greatly increased demand for these ores the annual production of manganiferous iron ores will exceed the annual production of the ordinary Cuyuna iron ores.

Production figures have been variously reported because of the different classifications made by statisticians regarding the content of manganese that constitutes the division between iron ores and manganiferous iron ores. According to a division made on the basis that these ores were produced separately and used specially, and not according to a division made on a basis of setting up some arbitrary content of manganese, the production for the Cuyuna district totals 4,735,806 tons as of Dec. 31, 1923; the greatest annual total production was 963,853 tons, in 1918.

Actual production of black ore ceased in 1918, but the accumulated ores at the mines were gradually acquired in the following years and, in 1923, the last of such old ores was shipped from the stockpile at the Cuyuna-Mille Lacs mine. If more such ore is desired, idle or abandoned mines must be restored or new ones developed. The total quantity of black ore shipped was 1,121,373 tons.

The production of brown ore began early by necessity of removal and not because of use for the ore. For instance, in the Armour No. 2 mine, an

From a paper presented at the annual meeting of the American Institute of Mining and Metallurgical Engineers, New York, Feb. 16-17, 1925. The author is geologist, Northern Pacific railway, Brainerd, Minn.

Table I

Season Analyses Typifying Black Ores

	Iron (dry), per cent	Phosphorus per cent	Silica, per cent	Manganese, per cent	Alumina, per cent	Moisture, per cent
Algoma	32	0.07-0.09	20-23	17-19	2-3	7-9
Clarke	35.5	0.104	15.28	16.95	....	....
Clarke	35	0.058	23.86	10.99	....	....
Cuyuna-Mille Lacs	37	0.09-0.10	18-20	11-12	....	13-14
Cuyuna-Mille Lacs	36.73	0.106	12.93	17.44	....	13.48
Cuyuna-Mille Lacs	37.46	0.106	7.97	22.01	....	13.50
Ferro	29-32	0.07-0.09	17-19	20-21	....	7-10
Gloria	28	0.18	17-19	17-18	....	8-9
Hopkins (black ore, expected analysis in 1919)	38	0.063	16.45	16.03	1.73	9.91
Mangan No. 1, crude	36	0.13	22	13	2.50	9-10
Mangan No. 1 hand picked	33	0.13	17	17	2.50	9-10

established iron ore mine, some brown ore was encountered with the iron ore and had to be taken out but it was not shipped immediately. The ore was not desired, but substantial shipments were made in 1916 and have continued each year since. For the district, a big slump occurred in 1919, 1920, and 1921, but shipments increased greatly in 1922 and 1923. Judging by the parties using these ores and the open pit developments now in progress, resulting from the growing demand for this ore, if business conditions in the industry had remained good, it is not unlikely that the 1924 shipment of this ore would have approximated 1,200,000 tons.

Chemical Composition

An idea of the composition of these ores may be obtained by examining published analyses, either those recorded in ore sales books of selling agencies or those in the annual publications of the Lake Superior Iron Ore association. To illustrate the compositions and variations, a few analyses, representing different years and different deposits, are presented in Tables 1 and 2 for some properties that may be deemed typical.

The moisture content for brown ores is notably variable, more so than is indicated by the analyses in Table 2. These ores might be divided into high and low-moisture ores. Not uncommonly brown ores mined from deposits that are primarily operated for their iron ore show the lower moisture contents; such ores also are invariably lower in alumina. The manganiferous ores from the Mahnomen pit were crushed and washed in 1923, thereby reducing the alumina and moisture contents; but in 1924 the ores were only crushed. The ores from the Sagamore pit, probably the wettest ores now mined, are dried to reduce the moisture; compared with ores from other mines the dry alumina content is high. The conditions suggest a close relationship between high alumina and high moisture. A sintering plant has been erected on the Oberg-Evergreen property to treat brown ores that will be obtained from that property in 1925. In 1924, a small tonnage of manganiferous ore from the Wearne pit was used and a sinter produced that has an excellent physical structure. Sintering drives out all the water and burns up the material usually reported as "loss by ignition." Every effort is being made in the district to give the trade a desirable product.

The black ores are low in alumina and moisture and frequently are lumpy. The black ores mined have shown much impregnated vein quartz, and hand picking was always undertaken when these ores were mined; in addition, the ores are associated and intermingled with a parent rock containing iron silicates that contribute much of the silica. Some of these ores show a greenish cast because of that leaner material. Because of this intimate association of the silica with the iron and the manganese, it will be impossible to apply at the mine any known process of separation that will reduce the silica content.

It seems that for a while the trade will have to adapt itself to the use of the brown ores quite as they are known today, which may be said to have an average composition of 41 to 46 per cent iron, .025 to 0.3 per cent phosphorus 4.50 to 9 per cent silica, 5 to 12 per cent manganese, and 3 to 4.5 per cent alumina, excluding special grading to meet rare requirements. The average manganese content of all ores shipped will approximate 8 to 10 per cent. There is a tendency now to produce two grades of 8 and a 10 per cent. If higher manganese is desired, some of the brown-ore mines can produce small tonnages. If lower phosphorus is desired, recourse must be had to a deposit of high-silica, black, ore; as these ores are costly to produce, their production will be deferred for some years.

Most of the drilling in the Cuyuna district was conducted vigorously in the ealiest years; since then few properties have been subjected to intensive exploration. In that earlier period manganiferous ore was deemed undesirable and drills were placed to avoid it. Many properties are known to contain some manganiferous ores. The present tendency is to strengthen known or developed properties by extending the mine developments, and by acquiring adjoinning parcels and increasing the magnitude of the existing operation. Another reason for not developing new tonnages, in later years, was to avoid creating burdensome taxation for idle properties. For that reason it is better to wait until the ore is desired and then test the possibilities of the numerous prospects.

Lack of explorations makes it impossible to formulate tonnages accurately for the entire field. The production record of mines that produced black ores shows a very small average annual output per mine. There are about a dozen properties that could be developed or restored. The average production for each of a number would hardly exceed 50,000 tons per year, because of the small sizes of the known deposits, and a few would not be much more than a clean-up scram. From a standpoint of reserves, they may be estimated to be the equivalent of about one-eighth of the brown ore reserves.

Accurate Estimates Are Possible

The brown ore deposits now being operated are in a state of development suitable for accurate estimating. They are generally well known, and are of a magnitude that enables a fairly close estimate to be made of the tonnage where explorations are perhaps inadequate. The largest producers ship on an average several hundred thousand tons per year; the smallest 50,000 to 100,000 tons; and others about 150,000 tons. Had the early prediction of production of 1,200,000 tons for 1924 been fulfilled, the average shipment this year for all mines would have been between 150,000 and 200,000 tons. The maximum annual production of the Mahnomen mine has almost reached 400,000 tons. The Sagamore mine has been studied by various careful investigators, and it is the opinion of the author that, including all ores, all present consumers of Cuyuna manganiferous ores can be supplied from this one mine for many years. This mine has not been operated to capacity nor is it fully devel-

Table II

Season Analysis Typifying Brown Ores

	Iron (dry), per cent	Phosphorus, per cent	Silica per cent	Manganese, per cent	Alumina, per cent	Moisture, per cent
Arko	41	0.290	9	10-12	4	14-15
Armour, No. 2	46-49	0.18-0.21	8.5-9.5	5.2-8.2	3.5-4.5	11-13
Hillcrest	46-49	0.25-0.28	6.9	4-6	3.8-4	8.5-9.5
Huntington	43.65	0.309	7.29	2.78	2.92	9.56
Milford	43.05	0.238	6.70	11.41	4.00	18.00
Martin	52.81	0.182	7.60	5.04	....	13.50
Mahnomen	50.14	0.277	6.97	4.93	3.24	12*
Mahnomen	46.80	0.283	5.48	8.25	4.20	12*
Mahnomen	43.33	0.297	5.10	11.72	3.25	12*
Mahnomen	41.03	0.296	4.43	13.89	3.25	12*
Mahnomen	36.42	0.310	3.90	18.69	3.20	12*
Sagamore	43.00	0.280	5.00	10.00	5.00	10†
Sagamore	48.00	0.280	8.00	6.50	4.00	10†
Sagamore	51.00	0.280	8.00	5.00	4.00	10†
Sagamore	53.50	0.280	8.00	3.50	3.50	10†
Sultana	38	0.174	9-10	13.75	3.50	15.00
Portsmouth	46.20	0.286	6.44	6.32	4.52	17.00
Portsmouth	43.22	0.298	6.33	9.55	4.84	17.00
Armour, No. 2	46.88	0.201	10.43	7.21	4.07	11.31
Louise	45.95	0.213	8.72	8.98	2.98	14.00

*Washed ores, 1923.
†Dried ores, expected analyses for 1924.

oped; it could produce over 4000 tons per day and easily deliver 700,000 tons per year.

Obviously the future will bring with it a greater consumption of these ores, as it has done in all important lines in the industry. Such demand will be met by a greater development of new tonnages. Consumers may become less exacting in their requirements, especially when the only available supplies of a raw product are not always up to desired requirements, as we understand them today. Without trying to see too far into the future, the conclusion seems inescapable that after making due allowance for increases in consumption and analytical requirements, consumers are amply protected for 15 years at least with suitable ores produced in large amounts and at reasonable costs.

This does not mean that the Cuyuna ores will be exhausted at that time, but the rapid comprehensive changes that now take place in a few years in the iron and steel industry hardly warrant our seeking further into the future of a commodity, like manganiferous iron ore, that is just making headway. Such ores undoubtedly will be available and will be mined for 30 years or more, but the guarantees required and costs may differ, explorations may bring to light new ores, different mixing may be resorted to, and by other practices the life of the deposits extended materially; for such a time our present standards cannot form a reliable guide.

The reserves of iron ore in the Lake Superior region are known quite well, and at a stipulated rate of consumption the approximate life of the reserves can be estimated. Each year new material will be made available. Twenty years from now ores high in silica will be used, either in crude form or after having been subjected to some beneficiating process. Every such effort will add greatly to the available reserve tonnage and extend the life beyond our first calculation.

Cuyuna Has Most Ore

The Cuyuna district possesses more manganiferous iron ores than all the rest of the country; but although required in smaller amounts than iron ores the supply is not so great that it will outlast our iron ore resources. The reserves of manganiferous iron ores in the Cuyuna district are not as well known as they should be. In many areas the presence of such ores, where not mined now, are indicated either by holes that were drilled in search for iron ore or by abandoned shafts started during the war. The demand for high-manganese low-phosphorus ores during the war and for low-silica high-phosphorus ores since the war has created a sort of stalemate for the one ore and an unprecedented rush in production for the other, and explorations are halted. Everything relating to the brown ores is momentarily a standard of measurement for comparison, and that is not sufficient for purposes involving the future.

No Use For Ferromanganese

Manganiferous pig iron is a special pig iron. The alloy ferromanganese contains about 80 per cent manganese; spiegeleisen contains about 20 per cent (16 per cent during the war); and manganiferous pig iron may be said to contain between 4 and 10 per cent. No alloy can be made unless the proper relation between manganese and iron exists in the ore; therefore, after allowing for the heavy losses of manganese in smelting ores, like Cuyuna ores, containing from 8 to 10 per cent manganese on the average, are usable only for making high-manganese pig iron. Manganiferous pig iron cannot be used instead of ferromanganese or spiegeleisen.

The use of manganiferous pig iron is rapidly gaining favor and it appears to be one of the most important recent advances in metallurgy where the raw products are involved. Undoubtedly increased adoption of the practice, rather than retardation, will be the rule. The assured increase in reserves of iron ore will be of greater proportion than increases in reserves of Cuyuna manganiferous iron ores if only such kinds as are now classed as available reserves are taken into consideration. A plausible conclusion is that the present reserves of such manganiferous ores are not big enough for the requirements of the Lake Superior reserves of iron ore likely to be available 20 years hence.

That conclusion is faulty because the comparison is between an ore that is well investigated and with suitable benefication established and an ore that is without either. For the iron ores we allow tremendous increases in tonnage as the result of beneficiation; but for the manganiferous ores no allowance is made for changes in practices, nor is exploration of properties as complete as for the iron ores.

Reference has been made herein regarding an ore intermediate between the brown and black ores, and the statement was made that none was known. There is a third class, however it constitutes the material rejected today because too high in silica. The eventual necessity of resorting to high-silica manganiferous ores will become just as urgent as in the case of iron ore. Because the black ores are usually associated with large widths of siliceous manganiferous formation, conditions are favorable for the development of large open pits on it and enable low mining costs to be obtained. The ore produced, if we may call it that, will be higher in manganese than is the present brown ore. Also, that material will be low in phosphorus, alumina, and moisture. In silica it will range between 25 and 35 per cent. Iron and manganese combined will total about 40 to 45 per cent dry.

In one place alone there is enough such material in a continuous band, for a mile or more, to produce a tonnage far in excess of any maximum figures now producible for black and brown ore reserves combined. There are other big areas. To some people it may seem absurd to refer to or consider material so high in silica, but it is the use of manganese and a growing practice that are under consideration and 20 years hence something must be offered to replace the rapidly depleted brown ores. Due to low cost mining and the higher manganese content this material will not be shunned. It will offer new problems, but they will be met.

As a matter of good conservation practice, even now some black ores might be mined and absorbed with the brown ores shipped and thereby consumed in suitable mixtures before mining and absorbing them becomes less favorable, except as they may in time become parts of open-pit deposits of the high-silica ores just described.

The Cuyuna district will never rival the Mesabi district from the standpoint of tonnage, nor are manganiferous ores needed in the same large amounts as are iron ores, but the Cuyuna district is destined to become, in a relative sense, as important and essential to the industry for its manganiferous iron ores as the Mesabi district has become noteworthy for its preponderance of open pit low-phosphorus iron ores.

Arrange More Courses in Heat Treating

The engineering extension service of Purdue university, Lafayette, Ind., will open three extension courses in heat treating of iron and steel at Bedford, Bloomington and Evansville, Ind. Seventy-five have enrolled for the course at Bedford, which, with the one at Bloomington, is being conducted in co-operation with the Bedford Stone club.

Evansville held the state attendance record for a similar course last year with 172 registered, and an enrollment in excess of that number is anticipated this year. The course in Indianapolis, is expected to have a total enrollment of 100. The courses in Indianapolis and Evansville are being held in co-operation with the chambers of commerce of the two cities. John F. Keller, engineering specialist in iron and steel, is conducting the four courses personally.

Editorials

European Steel Is A Factor

AN OUTSTANDING market development is the extent to which sales of European steel for importation into the United States have increased recently. Importers who have carefully studied the situation, expect to see some 750,000 tons of European steel sold along our coasts during 1925. The sale of 5500 tons of Belgian reinforcing bars to a New York contractor is only one of the recent important sales. A number of structural tonnages have been placed by eastern fabricators who are keeping the business under cover. Many eastern jobbers are replenishing their warehouse stocks from abroad. The sales of foreign materials have extended particularly to shapes, but they involve large tonnages of bars, heavy and light rails, with smaller tonnages of wire rods, galvanized barbed wire, black sheets and other products. These products are selling about $6 to $7 a ton under the American delivered prices.

A study of the situation indicates that so long as exchange rates continue as at present, the coastwise sections of the United States comprise the best foreign market for European steel mills. Events abroad suggest it may be a long time before the European currencies involved advance appreciably, so that this competition may prevail for an indefinite period. It is known that organizations who avowedly favor a protective tariff, have the iron and steel imports under close scrutiny. A curious feature of this business in foreign steel, however, is the attitude of the domestic steelmakers. They do not hesitate to express resentment over the loss of business here, and over the effect of the prices quoted on foreign steel. But as far as known, they are not attempting to bring any concerted pressure for relief.

Underlying Confidence Is Shown

A GOOD deal of confidence ought to flow from the extraordinary number of really big business transactions now pending. The acquisition of the Pan-American Petroleum Co. by the Standard Oil Co. of Indiana, the purchase of the Dodge Bros. automobile interest and its eventual public distribution, the consummation of the Nickel Plate railroad merger, even the vigorous efforts to adjust the troublesome St. Paul railroad and Wilson & Co. matters, constitute very tangible evidence that business is sound for the long pull. It is noteworthy that the greatest confidence in basic conditions is being manifested by those in position to know.

By-Product Coke Makes Progress

MANUFACTURE of coke to all indications has a large future. Popularity of by-product coke for domestic and commercial fuel is increasing rapidly in many industrial centers throughout the East. New coke ovens are now being built at Troy, N. Y. A $5,000,000 by-product coke project is under way for Hartford, Conn. Additional coke ovens are proposed at Providence, R. I., and several other cities have plans in various stages of development for the production of coke for domestic fuel.

A modern by-product coke plant forms an excellent accompaniment to an illuminating gas works, and wherever there are cities or closely grouped population centers of 500,000 or more, such a combination of gas and coke plant offers the means of attractive revenue.

While the use of gas for illuminating purposes is declining, its commercial use in many centers is increasing. Gas service as a public utility in all large cities is an established factor in the present civilization. Producing gas by a modern coke plant is a step in the direction of conservation and efficiency and on this ground should be encouraged.

Patent Reform Is Promised

ROOM is offered for much reform in the patent laws of this country and in our reciprocal arrangements with other countries in reference to patents. American inventors and manufacturers hope that the President's action, in transferring the United States patent office from the jurisdiction of the department of the interior to that of the department of commerce, will be followed by early, vigorous action in effecting such reforms.

As Secretary Hoover points out, an American patentee is required in many foreign countries to continuously manufacture in that country under his patent or lose his patent rights. No such requirement prevails in the United States. In consequence, our manufacturers have been driven to the establishment of a large number of factories abroad, whereas foreign patentees have been able to use their patents in the United States to actually prevent manufacture here.

This is but one of the discriminations prevail-

ing. The international convention for the protection of industrial property, to be held at The Hague, Oct. 8, 1925, will provide an opportunity to take up these matters with the representatives of the various foreign countries. Secretary Hoover already is drawing his plans for adequate representation at this meeting. "If this convention should fail to secure primary justice for American patentees," he says, "we shall ask for a complete revision of the patent laws of the United States which will bring this about." This statement is reassuring.

Copper Demand Runs High

FROM Jan. 1 to April 1 the copper market dropped nearly 1¼ cents a pound, bringing quotations back to levels prevailing in October, before the election buying movement. From the standpoint of price the trend of the market has been exceedingly unsatisfactory to all factors in the trade, including sellers and buyers as well, for the latter have been generally supplied with higher cost copper. Excepting from the price standpoint, however, the copper industry has been in a satisfactory state. Production by the Anaconda and American Brass Co. mills during the first quarter of 1925 was the largest of any similar period in history, with March the banner month for all time. Shipments of products by this leading interest totaled 200,000,000 pounds, or at the annual rate of 800,000,000 pounds of metal, exceeding the entire United States copper production prior to 1909. Despite these heavy shipments, John D. Ryan states the tonnage of unfilled orders as of April 1 was only 5 per cent less than the unfilled orders of Jan. 1. Recently buyers have been holding out of the market, due to the weakness in price, but consumption continues heavy and Mr. Ryan expresses the opinion that 1925 will be a record year for consumption, both here and abroad.

Ore May Be More Stable

BY COINCIDENCE prices for Lake Superior iron ore were announced on the same day, April 4, in 1924 and 1925, and by the same producer. The company thus "opening the market" reduced prices 80 cents a ton in 1924, and now has reduced them again about 50 cents.

Another coincidence is that when ore prices for 1924 were named, on the date of the buying movement, basic pig iron was $22, valley. The price of this grade of iron today is quoted at $21.

The nonbessemer iron ore is 50 cents a ton lower than a year ago, and the saving to ironmakers is approximately $1 a ton. That is the difference between the price of basic iron today and that which prevailed one year ago.

While the prices announced at the beginning of the season last year were shaded to some extent during the dull period, it is a question whether the new prices this year will be subject to the same treatment. This is because they are below the profit line for some interests.

What Our Readers Are Thinking

Sees Good Year Ahead

To the Editor:

We are finding business good and are adopting ourselves to conditions as they are, believing there is a good year ahead of us. But we have ceased to look for mythical boom business.

Without assuming to be in a position to advise business procedure I have found a few fundamental principles to cover pretty generally all business transactions. One cannot sell goods for $1 that cost $1 to produce, and continue in business. One's goods must earn a profit to the customer if the seller is to continue to receive his business. Quality goods, honesty of dealing with employes, customers and oneself; what more can be added as to business procedure, even though volumes were written on it?

A. N. GODDARD, president,
Goddard & Goddard Co.

Detroit, March 31, 1925.

Industry in Accord With Safety Plans

PREVENTION of industrial accidents has become an integral part of the business and industrial life of America. A keener sense of responsibility for human welfare has been awakened among the employers in our country and the practical application of this sentiment has helped to promote more harmonious industrial relations.

But has safety become deeply and permanently rooted in the entire industrial structure? Unfortunately it has not. Some employers have always had more or less regard for the safety and welfare of their employes; others have resented the workmen's compensation laws, which place upon them the responsibility for all accidents. I feel confident, however, that the majority of employers are now in full accord with compensation and safety legislation and that all employers will in time discover that these laws conserve their own interest as well as those of society as a whole.—*W. H. Cameron, managing director, National Safety council, in address at Grand Rapids, Mich., March 21.*

Farmer Is Greatest Factor in Prosperity

THE farmer is the one great factor in the prosperity of the country. The man who devotes his entire time to his own affairs, complimenting himself that he is minding his own business, is blind to the fact that his own prosperity is dependent on all groups. The farmer is the biggest customer, the biggest consumer, producer and seller in the whole country. He is the fundamental cause for prosperity.

The rural population of the United States is 48.2 per cent of the total. Farm products amount to $24,000,000,000 yearly, at a production of between $11,000,000,000 and $12,000,000,000. This leaves the farmer between $13,000,000,000 and $14,000,000,000 to spend on other commodities.—*William H. Woodin, president, American Car & Foundry Co., in address to Retail Advertisers' group of the New York Advertising club.*

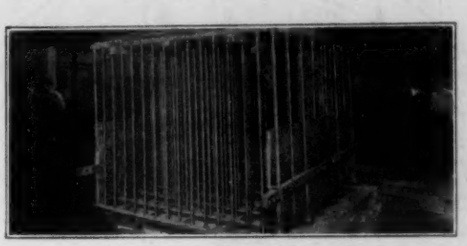
The Reader's Page

Vol. LXXVI, No. 15 IRON TRADE REVIEW April 9, 1925

Pig Iron Production—Fact and Fiction

PIG iron production statistics by the test of time, have won common acceptance as the most trustworthy yardstick of general business conditions.

At the present moment, with business sentiment disturbed and inclined to be apprehensive, these tell-tale symptoms of underlying conditions have a peculiarly high value and importance. It is especially gratifying, therefore, that IRON TRADE REVIEW's complete figures for March show further gain, slight though appreciable, in the production rate. This confirms what this publication indicated a week ago, based on partial returns, would be the case.



Economy in Pickling.
See Page 935

An actual increase in March is so directly in contrast to what has been expected and even had been reported in some directions that it has occasioned much comment. An eastern publication compiling similar statistics, in its last week's issue, went so far as to show an actual loss of production in March and a corresponding lower daily output.

Recognition of IRON TRADE REVIEW's *dependability* for statistics, market conditions, price quotations, etc., is shown by its constantly growing list of discriminating readers and prestige as a final authority.

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IRON TRADE REVIEW is published every Thursday by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation; Associated Business Papers, Inc.; and National Publishers Association.

Charles J. Stark .....Editor
Earl L. Shaner .....Managing Editor
John D. Pease .....Advertising Director
Frederick V. Cole .....Circulation Manager

Branch offices: 426 Old South Bldg., Boston; 1147 People's Gas Bldg., Chicago; 408 Edwards Bldg., Cincinnati; 2203-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburgh; 675 Monadnock Bldg., San Francisco; 84 Home Life Bldg., Washington. Foreign Offices: Prince's Chambers, Birmingham, Eng.; 2-3 Caxton House, Westminster, S. W. 1, London; 23 Rue de la Bienfaisance, Paris, France; 218 Friedrichstrasse, S. W. 48, Berlin, Germany.

Cable Address: *PENTON*, Cleveland; *IROTRAPEN*, London.

Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries, £2:0:0 per year.

Entered at the Postoffice at Cleveland as Second Class Matter
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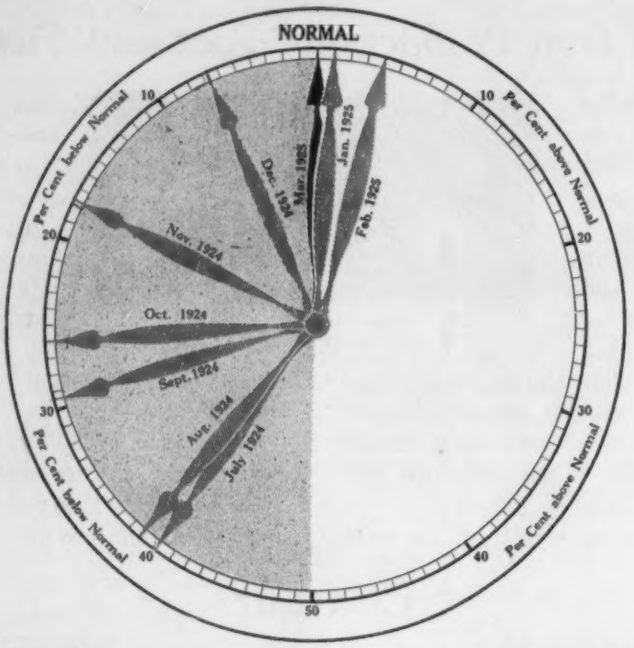
The Business Trend

Blast Furnace

The Dial represents the Blast Furnace Index of Business which is based upon a 40-year record of furnace activity. It is a barometer of general trade.



Business Dial

When 60 per cent of all the country's furnaces are in blast business conditions are normal. The Index is now exactly at the normal point on the dial.

Blast Furnace Index at Normal

BY JOHN W. HILL, Financial Editor

MARCH brought a small recession in the indicator hand of the Blast Furnace Business Dial. At the close of the month 246 furnaces were in blast, a net loss of 10 from the active list for the month. This was 60 per cent of the total number of 410 furnaces now in the country, or exactly at the theoretical normal point.

WHEN the blast furnace Index crossed normal at the close of January it was said in this column that the event presaged higher money rates and the beginning of the end of the soaring advance of securities. That forecast has been faithfully borne out. Money rates have gone up. The drop of blast furnace activity indicates no such expansion of business as to cause money to stiffen rapidly. But the extremely low rates of last year are not in view.

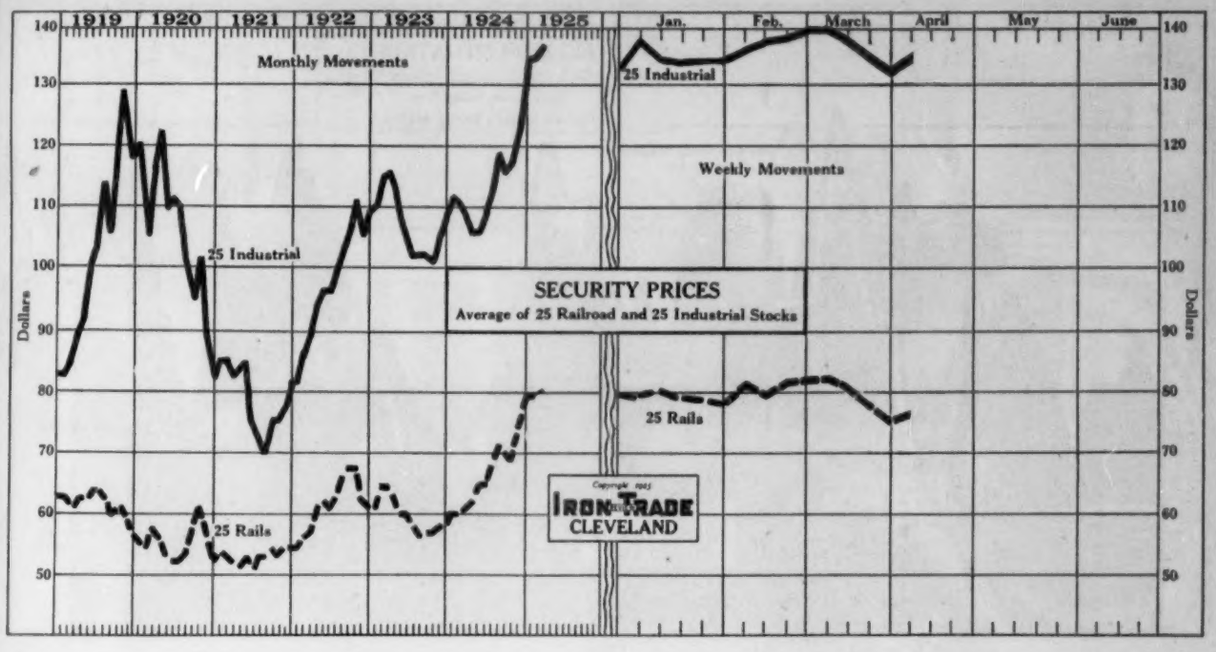
COL. L. P. AYRES, vice president of the Cleveland Trust Co., whose researches made the Index possible, regards it as a general indicator and warning rather than an exact guide for the stock market. Yet it proved itself an almost uncanny prognosticator this time. Stocks have dropped with violence, wiping out about one-half of the advance since election. Some steadiness is indicated now but a broad recovery will not be forecast until the Index falls definitely below normal.

THE implications for business of the decline in blast furnace activity are not unfavorable. The contraction is in line with the general cautious policy throughout industry. This conservatism is preventing the development of a boom peak. Lacking this an acute reaction should be avoided. Last year the Blast Furnace Index rose to 9 per cent above normal, from which point there was an extended recession.

SIGNIFICANT developments are seen in the weakness of commodity prices, in the decline in the ore price for the 1925 season and in the apparent petering out of the strike attempt in the nonunion coal fields of West Virginia. A tendency toward lower costs in basic industries is clearly evident. The resulting readjustment should have wholesome and steadying results as it works throughout general industry.

WITH ore and coal and many iron and steel products at the price levels now prevailing buying may well be stimulated. The same holds true in various other lines where price concessions have appeared. This fact together with the absence of generally excessive inventories should lend a certain support to trade this year. Meanwhile automobile outputs are gaining and many other important lines are responding to the season.

The Business Trend

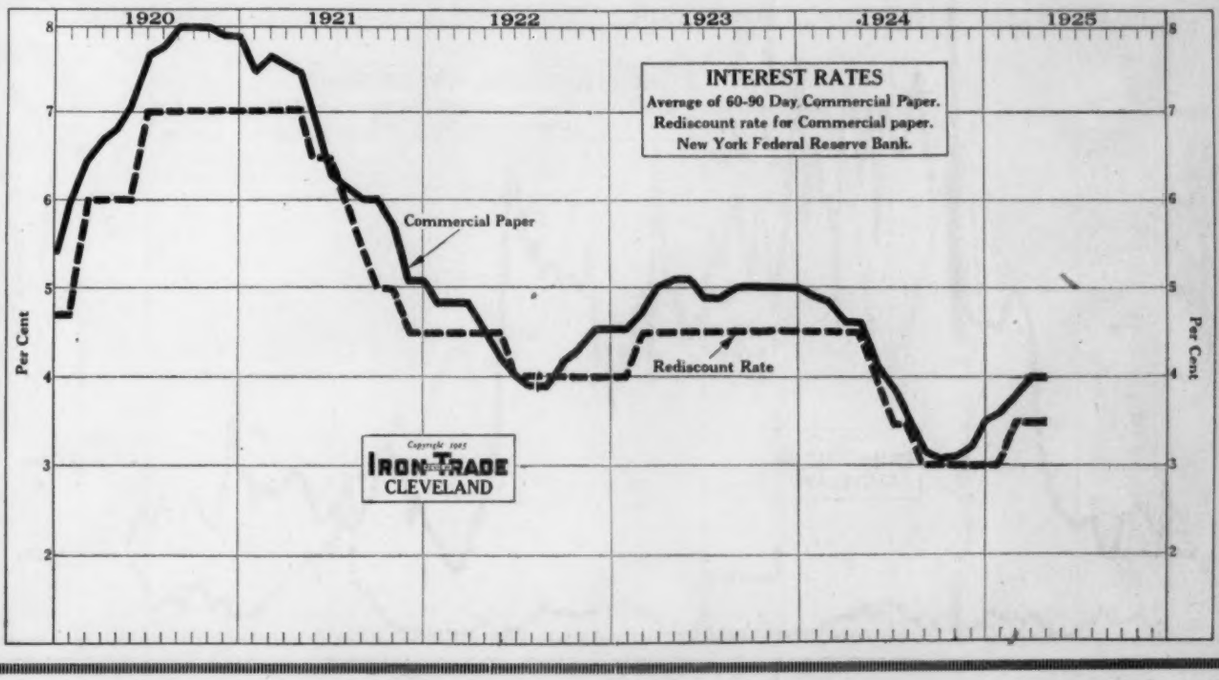


Security Prices

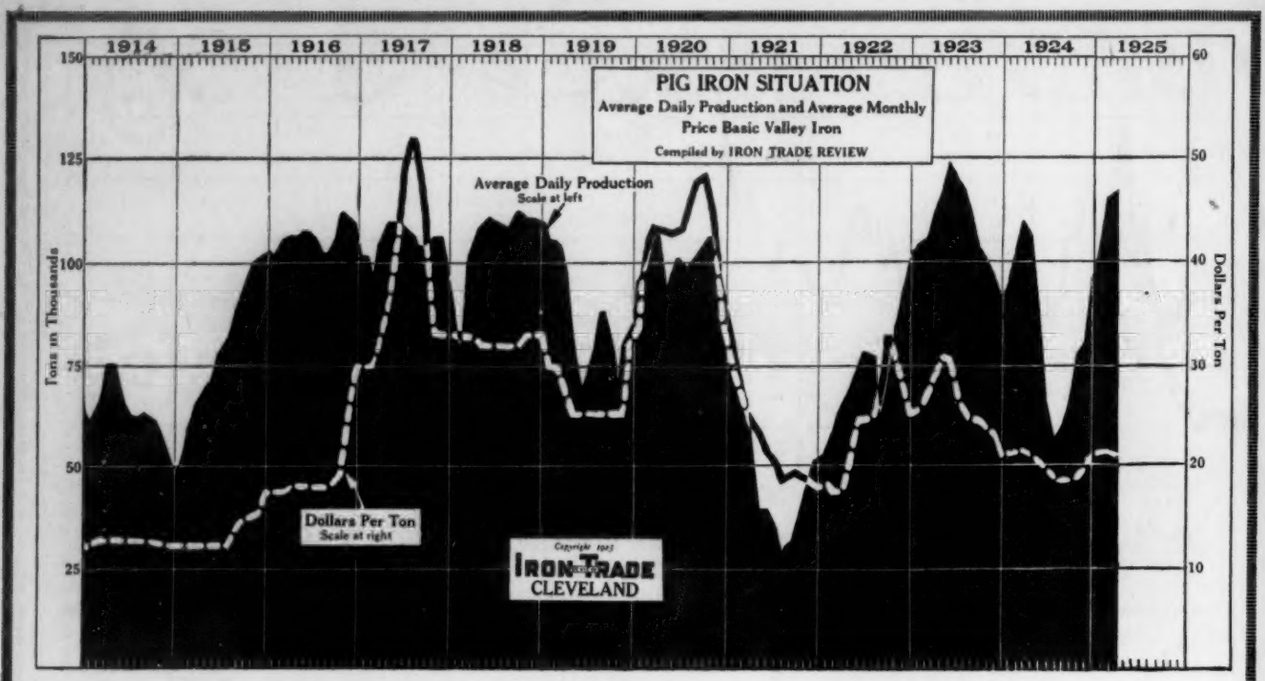
THE decline of security values, of which forewarning was given when the Blast Furnace Index crossed above the normal line in January, has been sweeping and unmistakable. Abou the half of the advance in average values since election has been wiped out. Fully one third of the rise since last May has disappeared. Twenty-five industrials are around 10 points below the year's peak in March. Twenty-five rails are about eight points under the top. Gradually firming money rates and overdone speculation was responsible. Recently values have steadied.

Interest Rates

THE rise of blast furnace activity since the first of the year indicated an expansion in business. To finance this expansion larger credit accommodations were required. This has been one factor in causing interest rates to advance. Higher interest rates have helped to depress security values. Liquidation of securities, cautious trade sentiment and restrained commodity prices are combining to prevent a rapid tightening of money, though the tendency is slowly in that direction. Commercial paper rates are from 4 to 4¼ per cent.



The Business Trend

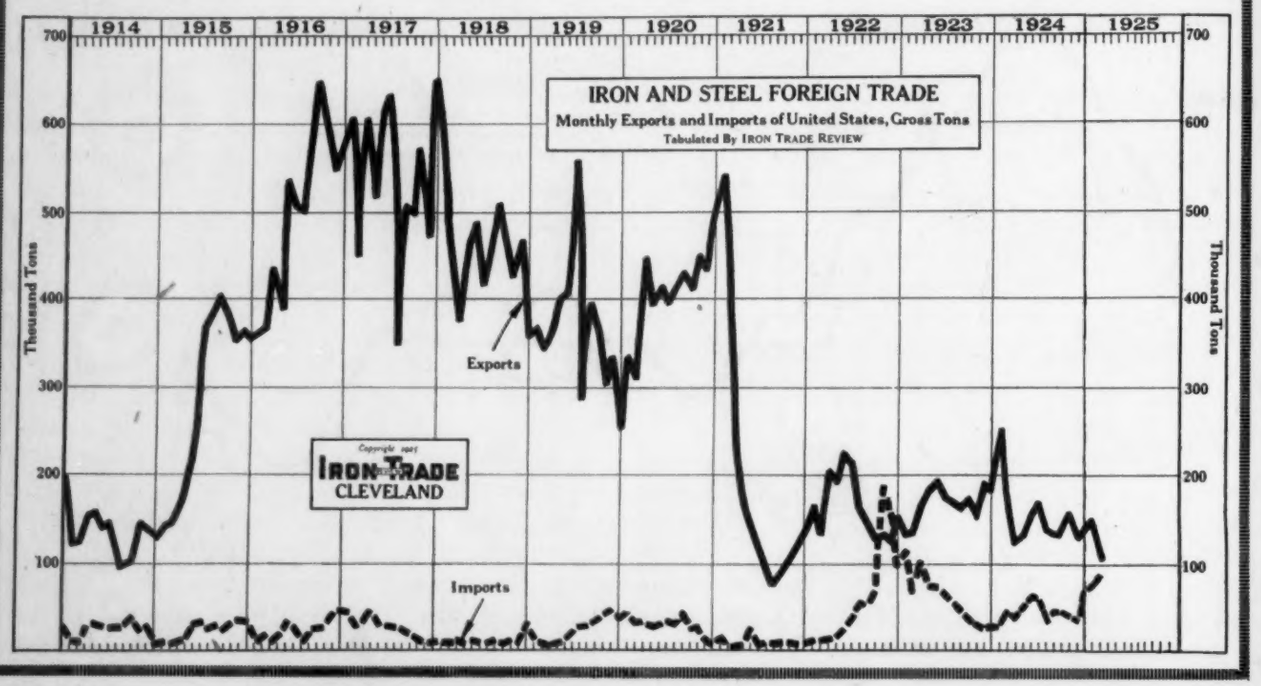


Pig Iron Production

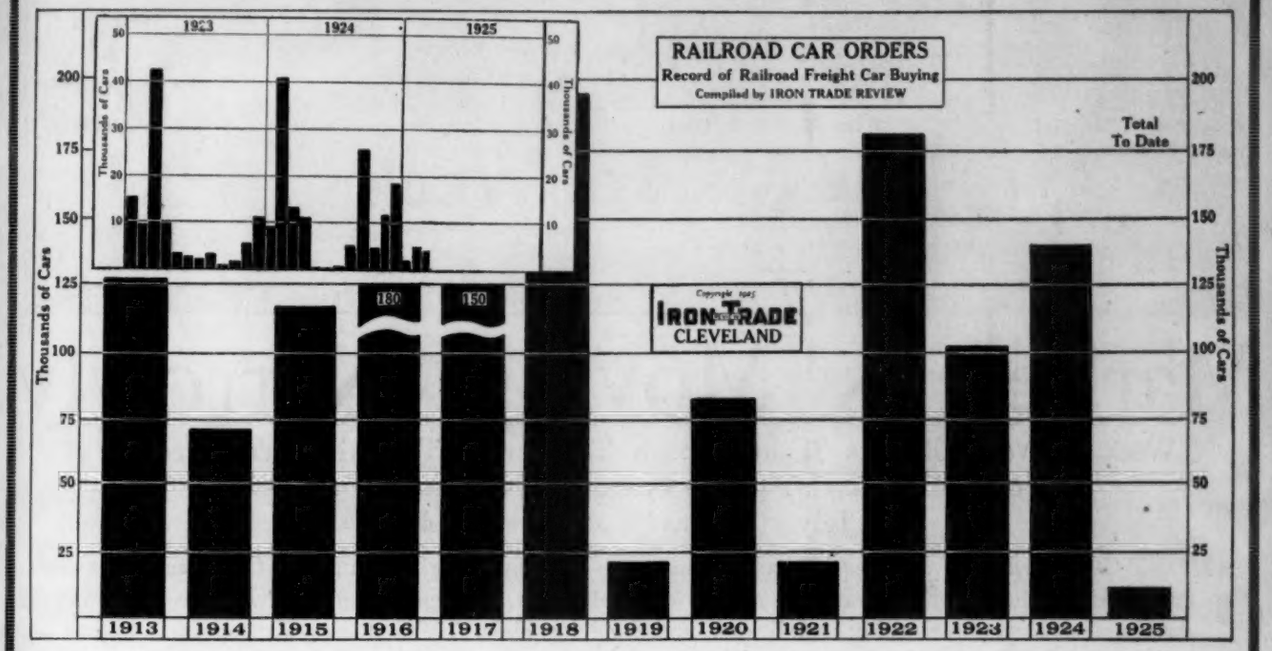
THE daily average rate of output of pig iron in March was little changed from that of the preceding month. The figure was 115,207 tons against 114,788 tons in February. This was a gain of 419 tons. The rate of March was the largest for any month since July 1923. As a number of furnaces became inactive late in the month the rate for April may show a recession. Such a decline would be in keeping with the general conservatism of industry. This caution is preventing boom conditions from developing.

Steel Foreign Trade

FOR the first time in many years the question of imports of foreign iron and steel products has become a serious one to domestic producers. In recent months the pinch of foreign competition has been felt in certain sections of the country. The statistics of imports of iron and steel products for February shows a total of 92,380 tons. This is more than twice the total for February 1924 and is the highest figure since March 1923. Exports dropped to 102,302 tons and the export excess of 9922 tons was the smallest in many months.



The Business Trend

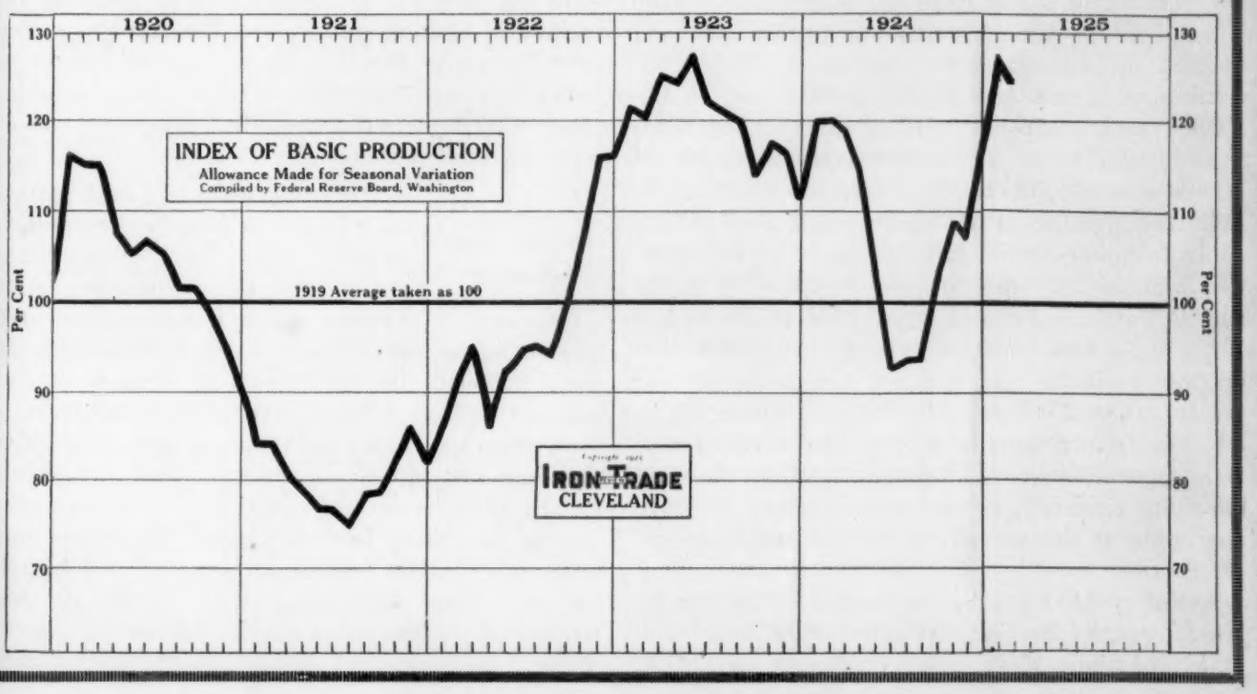


Car Awards

RAILROAD buying of equipment is falling far behind the record of one year ago. In March the total awards for cars was 4730. This compared with 5510 cars in February and with 1695 cars in January. The total for the three months was 11,935 cars compared with a total for the same period of 1924 or 62,650 cars. In March 1924 orders numbered 13,150 cars. Although railroad traffic has been running ahead of 1924, the railroads apparently are easily able to handle all demands upon them with present equipment. Idle cars on March 22 amounted to 320,565.

Basic Production

THE production of basic commodities declined in February. The index, compiled by the federal reserve board of Washington, is adjusted to allow for differences in the number of days and for seasonal variations. It stood at 124 against 127 in January. Despite the recession the number continued at the highest level, January excepted, of any month since May 1923. Increases in iron and steel and in copper were offset by declines for outputs of lumber, cement, soft coal, petroleum and lessened activity in the woolen industry. Automobile output now is increasing.



Market Is Moving Narrowly

Week to Week Changes Slight Though Tendency Is Toward Lower Prices and Operations—March Pig Iron Production Continues Gain Since July—Ore Price Cut Unexpected

SHORT-CUT ordering apparently has become firmly established as the common practice of steel users, under prevailing conditions and the passing weeks fail to reveal any underlying change of importance in the general situation. Producers still must rely on incoming current tonnage to keep them going. This lack of order books which in the past always has been associated with a thin market, undoubtedly tends to keep sentiment restless and uncertain. Buyers see no incentive to discount the future. Yet the fresh tonnage is sufficient to hold production on a high plane.

While the tendency of the market and of operations is lower, this is by such a gentle process that it scarcely is a sign of a fundamental reaction.

March Iron Gains

Though reported as a reduction in some publications, actually, the March output of pig iron, as foreshadowed in last week's IRON TRADE REVIEW, shows a further gain and reached the highest point since April, 1923. Production in March was at the annual rate of 42,200,000 tons compared with a rate of 41,800,000 tons in February. The daily average output in March was 115,207 tons against 114,788 tons in February. The total for March was 3,571,442 tons which compares with 3,214,067 tons in February.

The number of blast furnaces in operation at the end of March was 246 as against 256 at the end of February, a loss of 10, indicating that March production probably has touched the peak for the present. On this basis the Blast Furnace Index registers 60 per cent, or exactly the so-called normal stage of business. Apparently this index has faithfully reflected the recent contraction of business since at the end of February it stood at 62.3 per cent.

Award of 3400 cars by the Southern Pacific is the largest order of its kind this year. Other awards this week total about 1000. March car orders were 4730.

The Pittsburgh Steamship Co. Steel corporation subsidiary, is negotiating for two lake freighters involving about 10,000 tons. Vancouver is taking bids on 6000 tons for a pipe line.

Ore Cut Is Surprise

The reduction in Lake Superior iron ore prices on an average of 52 cents per ton for all grades, announced April 4, came as a general surprise. This cut was precipitated by the action of one large producer in closing a considerable tonnage on the new basis. It happens that the same producer also opened the market one year ago with a reduction of 80 cents. On non-bessemer ore the 1925 price is 50 cents lower. An important action taken this year is the reduction of the base guarantee on bessemer ore from 55 per cent iron natural to 51.5 per cent, thus placing all grades on the same basis. Although there was some discussion of the advisability of changing the method of figuring unit values, the system remains as in the past. Sales of ore to date have not been heavy but are upward of 1,000,000 tons including about 175,000 tons for the Ford Motor Co. which went to three producers.

Import Sales Active

Active selling of foreign steel, particularly Belgian at $6 to $8 per ton under domestic prices has continued along and nearby the Atlantic and Gulf Coasts. These low prices are made possible by present exchange rates. Considerable secrecy surrounds the negotiations as some buyers are reluctant to have details known. The week's sales of bars, structural shapes and rails are placed at 10,000 tons including several important building propositions. For Brooklyn sewer work 5500 tons of Belgian reinforcing bars have been purchased. Importers estimate fully 750,000 tons of foreign steel will be sold this year along American coasts. Foreign pig iron competition is less important in the East.

Pig iron prices had discounted the cut in iron

ore according to some belief, but this week has seen a further weakening of the market. Valley bessemer is $1 and basic and foundry 50 cents lower. Chicago is now on a $23 basis. Buffalo No. 2X has been quoted in New England at $20.25. Silveries and bessemer ferrosilicon are being shaded $1 to $2. Buying remains conservative.

The reduction of about $1 in ore costs per ton of pig iron will not become effective for producers until the opening of navigation about May 1.

IRON TRADE REVIEW composite of fourteen leading iron and steel products dropped sharply this week or by 53 cents to $39.69, the lowest since the first week last Decemeber.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Apr. 8, 1925	Mar. 1925	Jan. 1925	April 1924
PIG IRON				
Bessemer, valley, del., Pittsburgh	$23.26	23.86	24.56	24.61
Basic, valley	20.50	21.35	21.80	21.70
Basic, eastern del., eastern Pa.	22.50	23.75	24.25	21.35
*No. 2 foundry, del. Pittsburgh	22.26	22.86	23.91	23.51
No. 2 foundry, Chicago	23.00	24.00	23.80	24.40
*Southern, No. 2, Birmingham	20.00	21.00	20.00	22.20
*Southern Ohio, No. 2, Ironton	21.00	21.60	22.00	23.00
**No. 2X, Virginia furnace	24.50	24.00	24.50	25.50
**No. 2X, eastern, del. Phila.	23.26	24.51	25.61	23.73
Malleable, valley	20.50	21.25	22.20	22.20
Malleable, Chicago	23.00	24.00	23.80	24.40
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	22.26	23.36	23.66	23.51
Ferromanganese, del., Pittsburgh	119.79	119.79	119.79	112.29
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	3.00	3.35	4.10	3.55
Connellsville foundry, ovens	3.75	3.85	5.10	4.60
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	37.00	38.50	39.20	42.10
Sheet bars, open-hearth, Pittsburgh	37.00	38.50	39.20	42.10
Billets, bessemer, Pittsburgh	35.50	37.75	37.40	40.00
Billets, open-hearth, Pittsburgh	35.50	37.75	37.80	40.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	2.10	2.10	2.30
Steel bars, Chicago	2.20	2.20	2.10	2.40
Steel bars, Philadelphia	2.37	2.42	2.32	2.57
Iron bars, Philadelphia	2.32	2.28	2.28	2.47
Iron bars, Chicago mill	2.10	2.10	2.00	2.35
Beams, Pittsburgh	2.00	2.10	2.10	2.35
Beams, Philadelphia	2.27	2.32	2.32	2.57
Beams, Chicago	2.30	2.30	2.20	2.50
Tank plates, Pittsburgh	2.00	2.05	2.00	2.35
Tank plates, Philadelphia	2.32	2.37	2.32	2.52
Tank plates, Chicago	2.30	2.30	2.20	2.50
Sheets, black, No. 28, Pittsburgh	3.35	3.45	3.55	3.70
Sheets, blue anl., No. 10, Pittsburgh	2.60	2.65	2.70	2.80
Sheets, galvanized, No. 28, Pittsburgh	4.50	4.70	4.75	4.85
Sheets, black, No. 28, Chicago	3.75	3.75	3.75	4.10
Sheets, blue anl. No. 10, Chicago	2.75	2.85	2.85	3.35
Sheets, galvanized, No. 28, Chicago	4.75	4.90	4.90	5.20
Wire nails, Pittsburgh	2.85	2.85	2.85	3.00
Wire nails, Chicago	3.00	3.00	3.00	3.35
OLD MATERIAL				
Heavy melting steel, Pittsburgh	17.00	18.25	22.10	16.60
Heavy melting steel, eastern Pa.	16.00	16.25	20.00	15.35
Heavy melting steel, Chicago	15.00	16.70	19.45	14.65
No. 1 wrought, eastern Pa.	18.75	19.50	21.50	18.40
No. 1 wrought, Chicago	14.75	16.65	19.15	14.80
Rails for rolling, Chicago	16.50	18.15	20.95	17.10

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (April 8, 1925)	$39.69
Last week (April 1, 1925)	40.22
One month ago (March, 1925)	40.70
Three months ago (Jan., 1925)	41.02
One year ago (April, 1924)	42.33
Ten years ago (April, 1915)	42.66

Late News Flashes

Foreign Steel Makes More Inroads

New York, April 7.—It is estimated that at least 10,000 tons of foreign steel consisting of shapes, merchant bars, concrete bars and rails were sold during the past week, mostly in the South.

Valley Shows Some Gain

Youngstown, April 7.—Steelmaking operations in the Mahoning valley this week show a slight increase. Independent open-hearth operations are at 67 per cent of capacity while district activity stands at 70 per cent. Sheet mills held at 70 per cent.

Makes Record in Shipments

Chicago, April 7.—March shipments of strip steel and other products by the Acme Steel Co., formerly the Acme Steel Goods Co., were the largest of any month in the company's history of 45 years. First quarter also established a record.

Chicago Stack Goes Out

Chicago, April 7.—The blowing out of a stack at the South Chicago works of the Illinois Steel Co. brings the active list of steel works blast furnace stacks in this district to 32 out of 35. This is a recession of two stacks in three weeks from the high mark. Open-hearth steel capacity continues to be utilized practically 100 per cent.

Japanese Postponing Buying

New York, April 7.—Japanese buying has fallen off almost entirely. The Kawasaki Dock Yards, Kobe, Japan, has postponed action indefinitely on an inquiry for 10,000 tons of sheet bars. The Kawasaki company has postponed action also on the construction of a proposed sheet mill.

Study Pig Iron Costs

Philadelphia, April 7.—F. M. Leonard and R. R. Merrill, representatives of the tariff commission, are in this territory studying pig iron costs with a view to making recommendations to the commission respecting tariff regulations on pig iron. This investigation arises from the increased importations of foreign pig iron to the East which had brought forth complaints from eastern producers.

Pittsburgh Shows Small Change

Pittsburgh, April 7.—The Carnegie Steel Co. retained 89 per cent of ingot capacity as its average operating basis for last week. This present week starts on the same basis. The company has 46 out of 58 blast furnaces active, but may shortly put out one or two for relining. Independent steel interests in this territory are operating slightly above 80 per cent of ingot capacity on the average.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch and larger

Pittsburgh, open hearth	$35.50 to 37.00
Pittsburgh, bessemer	35.50 to 37.00
Youngstown	35.50
Philadelphia	42.80 to 43.30
Chicago	38.00 to 40.00
Forging, Pittsburgh	40.50 to 45.50
Forging, Philadelphia	47.30 to 52.30

SHEET BARS

Pittsburgh and Youngstown	37.00

SLABS

Pittsburgh	35.50 to 37.00
Youngstown	35.50

WIRE RODS

¼-inch and finer

Pittsburgh	$48.00 to 50.00
Cleveland	48.00 to 50.00
Chicago	52.00 to 53.00

Standard extras, $2.50 per ton over ¼-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	2.00c to 2.10c
Universal skelp, Pittsburgh	2.00c to 2.10c
Sheared skelp, Pittsburgh	2.00c to 2.10c

Structural Shapes

Pittsburgh	2.00c ao 2.10c
Philadelphia	2.22c to 2.42c
New York	2.24c to 2.44c
Chicago	2.30c
Cleveland	2.19c to 2.29c
Birmingham	2.25c to 2.35c

Steel Plates

Pittsburgh	2.00c to 2.10c
Philadelphia	2.32c to 2.42c
New York	2.34c to 2.44c
Chicago	2.30c
Cleveland	2.19c to 2.29c
Birmingham	2.15c to 2.25c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c to 2.10c
Pittsburgh, cold finishing	2.25c
Pittsburgh, forging quality	2.25c to 2.35c
Philadelphia, soft steel	2.42c
New York, soft steel	2.44c
Chicago, soft steel	2.20c
Cleveland, soft steel	2.19c to 2.29c
Birmingham, soft steel	2.25c to 2.35c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.10c to 2.20c
Chicago, rail steel	2.00c to 2.10c
Mill, rail steel	1.90c to 2.00c
Philadelphia, common iron	2.32c
New York, common iron	2.34c
Chicago, common iron	2.10c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6-inches and under	2.40c
Bands, Pittsburgh 6-inches and under	2.40c
Hot rolled strip steel, Pittsburgh stamping quality	2.20c to 2.40c
Hot rolled strip steel, Chicago	2.60c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	4.00c

Chicago and Worcester, Mass. $3 per ton higher.

Cold Finished Steel

Cold finished steel bars, drawn or rolled Pittsburgh, Chicago, carloads	2.70c to 2.80c
Less carload	2.95c to 3.05c
Steel shafting, turned and polished Pittsburgh, Chicago	2.70c to 2.80c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steels

Pittsburgh base

S. A. E. Series—	
2300 (3½ per cent nickel)	4.75c to 5.00c
3100 (nickel chromium)	3.65c to 3.75c
6100 (Chrome vanadium)	4.50c to 4.75c
6100 (Chrome vanadium spring)	4.00c to 4.25c
9250 (Silico manganese spring)	3.50c to 3.60c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar price; under 4 x 4 to 2½ x 2½-inch $5 higher. Chicago base $2 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	23.00 to 25.50
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45 mill	1.70c to 1.75c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c to 2.90c
Spikes, small railroad, 7/16-inch and smaller, Pittsburgh	3.10c to 3.20c
Spikes, Boat and Barge, Pitts	3.25c
Spikes, railroad, Chicago	3.00c
Track bolts, Pitts. standard	3.90c to 4.25c
Track bolts, Chicago	4.00c
Tie plates, Pittsburgh	2.35c to 2.50c
Tie plates, Chicago	2.45c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base

Wire nails	2.75c to 2.85c
Galv'd nails, 1-inch and over	5.00c to 5.10c
Plain wire	2.50c to 2.60c
Annealed wire	2.65c to 2.75c
Galvanized wide No. 9 gage	3.10c to 3.20c
Barbed wire, painted	3.20c to 3.30c
Barbed wire, galvanized	3.45c to 3.55c
Polishing staples	3.20c to 3.30c
Galvanized staples	3.45c to 3.55c
Coated nails, count keg	2.15c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7 bars and 12-in. stays per 100 rods, f.o.b. Pittsburgh	$20.56 to 21.09

Joliet, DeKalb and Waukegan, Ill., $2 per ton over Cleveland-Pittsburgh base on products made there. Worcester, Mass., and Fairfield, Ala., $3 higher. Duluth $2 higher. Chicago delivered price $3 higher, Anderson, Ind., $1 higher.

Sheets

SHEET MILL BLACK

No. 28, Pittsburgh base	3.35c to 3.50c
No. 28, Philadelphia, delivered	3.67c to 3.82c
No. 28, Gary, Indiana Harbor	3.60c to 3.70c
No. 28 Chicago, delivered	3.65c to 3.75c

TIN MILL, BLACK

No. 28, Pittsburgh, base	3.50c to 3.60c
No. 28, Gary base	3.60c to 3.70c

GALVANIZED

No. 28, Pittsburgh, base	4.45c to 4.60c
No. 28, Philadelphia, delivered	4.92c to 5.07c
No. 28, Gary, Indiana Harbor	4.70c to 4.80c
No. 28, Chicago, delivered	4.75c to 4.85c

BLUE ANNEALED

No. 10, Pittsburgh base	2.60c to 2.70c
No. 10, Philadelphia, delivered	2.92c to 3.02c
No. 10, Gary, Indiana Harbor	2.70c to 2.80c
No. 10, Chicago, delivered	2.75c to 2.85c

AUTOMOBILE SHEETS

No. 22, Pittsburgh base	4.40c to 4.50c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, but iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—f.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3¼ to 3½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.15c to 6.25c
Sheet piling base, Pittsburgh	2.15c to 2.25c
Cut nails, f.o.b. mills	2.90c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	50.70 to 52.20
Six-inch and over, Chicago	46.70 to 48.20
Four-inch, Birmingham	44.00 to 44.50
Six-inch and over Birmingham	40.00 to 40.50
Four-inch, New York	58.50 to 59.60
Six-inch and over, New York	53.50 to 54.60
Standard fittings, Birmingham, base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B.

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland and Chicago.

Hot pressed square tapped or blank	$4.00 off list
Hot pressed hexagon tapped or blank	$4.40 off list
Cold punched square or hexagon blank	$4.10 off list
Cold punched square or hexagon tapped or blank	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

CARRIAGE BOLTS

(⅜ x 6", smaller and shorter)

Rolled thread	50, 10 and 5*
Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4", hot pressed nuts)

Rolled thread	50, 10 and 5*
Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 1, 2 and 3 heads	50 and 10 off
4 to 10 heads	50-10 + 20 off
*Flat and round head stove bolts	80 and 5 off
Tap bolts	30 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off

*Price quoted on small business.

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S. A. E. Castellated	U. S. S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80, 10, and 5 off
Upset	80, 10, 10 and 5 off

SQUARE HEAD SET SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

Rivets

Structural rivets, carloads Pittsburgh and Cleveland	2.50c to 2.60c
Structural rivets, carloads, Chicago	2.75c
Rivets, 7/16-in. and smaller Pittsburgh and Cleveland	70, 10 and 5 off
Rivets, 7/16-in. and small Chicago*	70, 10 off

*Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought, c. l., Chicago dist.	$6.20 off
Wrought, c. l., Pitts. dist.	$6.00 to $6.10 off
Lock washers f.o.b. factory	85 and 10 off

Pig Iron

Valley Prices Down 50 Cents to $1 as Iron Ore Drops—Buyers More Reluctant to Close —Foreign Sales in East Diminish

FURTHER weakness in the pig iron market and a slower movement of current business is traceable to the drop in Lake Superior iron ore prices While the new prices will not directly affect cost of production until after the opening of the shipping season, some weeks from today, important furnace interests have reduced their prices of foundry, basic and bessemer iron 50 cents. Foundry and basic prices are down to $20.50 valley, minimum, while bessemer is $21.00. No. 2X iron has sold at $20.25, Buffalo, for shipment into eastern territory. This is the lowest price on Buffalo iron thus far reached in the present movement. At Chicago $24 has disappeared as a factor, and the range is $23 to $23.50. Less foreign competition is noted in the East as European prices at present are too high to attract buyers.

PITTSBURGH, April 7.—While the trade states the pig iron market already has discounted the ore price reduction, various grades of iron are quoted 50 cents lower than a week ago. Chief activity centers in bessemer iron, several sales being noted up to 500 tons. Two local buyers took 500 and 200 tons, respectively ,at $21.50, valley. Following these sales a western Pennsylvania furnace interest sold 500 tons of bessemer iron at $21, valley. This grade now is quotable at $21 to $21.50, valley. The Wheeling Mold & Foundry Co. is negotiating for 1500. Basic is quoted nominally at $20.50 valley, in the absence of inquiry or sales, although it is reported a nearby sheetmaker closed its second quarter basic requirements with a regular source of supply. No. 2 foundry is quoted $20.50 to $21, some producers having no occasion as yet to revise the maximum quotation. Others are taking small lot business at $20.50, base. The Titusville Iron Works still is tabulating quotations on 1000 tons of No. 2 and No. 3 iron. The Union Radiator Co. also defers action on 1500 tons. An inquiry from Dayton, O., calls for 1500 tons, and a nearby melter wants 1000 tons of foundry iron.

Average sales prices of pig iron for March, as compiled by W. P. Snyder & Co., covering basic and bessemer grades were $21.30 and $22.30 respectively. This is a decrease of 20 cents a ton on basic and 43 cents on bessemer from February.

Boston, April 7.—Two sales of pig iron, about 500 tons each, are noted. Buffalo furnaces are having difficulty maintaining at $22 base, or $26.91 delivered. Several small sales of eastern Pennsylvania iron have been made at $23 base, or $26.65 delivered. The amount of foreign iron in storage is diminishing, but still is cause of strong price competition in eastern New England cities. A few lots of continental iron have been sold at $23 on cars, Boston.

New York, April 7.—A New England melter has bought No. 2X foundry iron at $20.25, Buffalo, which is the lowest price on the present movement. Otherwise the market is untested. Comparatively small sales were noted here in the past week. Eastern Pennsylvania foundry is $22 to $22.50, base furnace. Inquiry is small, aggregating only 2000 tons. Several eastern operators are considering banking or blowing out furnaces. Foreign iron bought some months ago now is well sold, hence less foreign competition is expected as present European prices are too high to admit profitable importation. The Chester, Pa., furnace is to blow in soon.

Philadelphia, April 7.—Since a sale of 1500 tons of No. 2 plain at $22, eastern Pennsylvania furnace several moderate tonnages of foundry iron have been sold at $22.50, base, a price of $22, base seems minimum, subject to compensation of freight differentials.

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$21.00 to 21.50
Bessemer, Pittsburgh	22.76 to 23.26
Basic valley	22.26
Basic, Pittsburgh	20.50
Basic, Buffalo	**21.00 to 21.50**
Basic, del., eastern Pa.	22.25 to 22.75
Malleable, valley	20.50 to 21.00
Malleable, Pittsburgh	22.26 to 22.76
Malleable, Cleveland, del.	**23.00 to 23.50**
Malleable, Chicago	23.00 to 23.50
Malleable, Buffalo	**21.00 to 21.50**
Malleable, del., eastern Pa.	23.25 to 24.25
No. 1X, eastern del., Phila	23.76 to 24.76
No. 1X, Buffalo	**21.50 to 22.50**
No. 1 foundry, Chicago	23.50 to 24.50
No. 2 foundry, valley	20.50 to 21.00
No. 2 foundry, Pittsburgh	22.26 to 22.76
No. 2 foundry, Buffalo	**21.00 to 21.50**
No. 2 foundry, Chicago	23.00 to 23.50
No. 2 foundry, Granite City	**25.00 to 25.50**
No. 2 foundry, Ironton fur.	21.00 to 22.00
No. 2 foundry, Cleveland, del.	**23.00 to 23.50**
No. 2 foundry, del., Phila.	22.76 to 23.26
No. 2 foundry, N. J., tidewater	**23.39 to 24.39**
No. 2X, Eastern del., Phila.	23.26 to 23.76
No. 2X, east, N. J., tidewater	**23.89 to 24.89**
No. 2X, eastern del., Boston	26.65 to 27.65
No. 2X, foundry, Buffalo fur.	**21.50 to 22.00**
No. 2X, Buffalo, del., Boston	26.42 to 27.42
Continental foundry, Boston	**23.50 to 24.00**
No. 2 southern, Birmingham	**18.50 to 21.00**
No. 2 southern, Cincinnati	22.55 to 25.05
No. 2 southern, Philadelphia	26.31 to 28.81
No. 2 southern, Chicago	24.51 to 27.01
No. 2 southern, Cleveland	24.51 to 27.01
No. 2 southern Boston (rail and water	**25.41 to 27.91**
No. 2 southern, St. Louis	**23.67 to 26.17**
No. 2X, Virginia furnace	**23.50 to 24.50**
No. 2X, Virginia, Phila.	**28.67 to 29.67**
No. 2X, Virginia, Jersey City.	**29.04 to 30.04**
No. 2X, Virginia, Boston	**29.42 to 30.42**
Gray forge, eastern Pa.	22.25 to 22.75
Gray forge, val. del. Pitts	21.76 to 22.26
Low phos., standard, valley	**29.00 to 29.50**
Low phos., standard, Phila.	**29.79**
Low phos., Lebanon, furnace.	**26.00**
Low phos., English, Phila.	26.26 to 26.76
Charcoal, Birmingham	**30.00**
Charcoal, Superior, Chicago.	**29.04**

Silvery iron, Jackson county, Ohio, furnace, 7 to 8 per cent, $27.00 to $29.00; 8 to 9 per vent, $28.50 to $30.50; 9 to 10 per cent, $30.50 to $32.50; 10 to 11 per cent, $32.50 to $34.50; 11 to 12 per cent; $35.00 to $37.00; 12 per cent, $37.50 to $39.50.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 to 11 per cent, $38.50 to $39.50; 11 to 12 per cent, $41.00 to $42.00; 12 to 13 per cent, $43.50 to $44.50.

Basic is featureless. The nominal quotation is $21.50, furnace. Low phosphorus is quiet and unchanged. A substantial tonnage of English low phosphorus iron was sold two weeks ago at about $25.75, duty paid tidewater. Foreign foundry iron bought some time ago for resale has been fairly well liquidated. European prices are too high to permit much competition at present.

Buffalo, April 7.—Pig iron prices are softer. Large consumers are able to buy basic at $21. It also is reported this price has been done in exceptional cases on low silicon foundry and malleable. One lot of 1000 tons of malleable was sold last week.

Cleveland, April 7.—The market for pig iron is quiet, while an increase in the melt is observed in this district. Sales by furnaces with headquarters here during the week totaled around 15,000 tons. A Dayton, O., foundry wants 1000 tons; an Erie, Pa. melter is in the market for 700 tons; an inquiry from Altoona, Pa. is for 500 tons, and one from Anderson, Ind. for 200 tons. Various interests do not anticipate much buying for several weeks. They believe the reduction in ore prices will lead consumers to wait. No changes have been made in the quoted price schedules of local furnaces. Sales of silvery iron by southern Ohio interests at $1 off the open schedule are noted.

Cincinnati, April 7.—Although pig iron prices are weak, there is an improvement in buying. The market on northern iron ranges from $21 to $22, Ironton base, while southern iron is $18.50 to $21, Birmingham base. Furnaces in the Tennessee district are asking $18.50. The Saginaw Products Co., Saginaw, Mich., bought 750 tons of 7 to 8 per cent silvery. The Hooven, Owens, Rentschler Co., Hamilton, O., 200 tons of northern foundry iron and is inquiring for 500 tons of the same grade of different analysis.

Chicago, April 7.—Standard northern iron was sold in small lots in the past week at $23 and $23.50, furnace. Some sales of high silicon still are made at $1 differential, but some also are made at a 50-cent differential. The market is difficult to ascertain on account of the small volume of business, but the range is $23 to $23.50, apparently representative of No. 2 foundry and malleable. Better inquiry is coming from Michigan and Indiana. Melters in the latter state apparently bought less heav-

ily than in adjoining states. Most sales and inquiries are for 500 tons or under. A Minnesota user bought 200 tons of low phosphorus iron. Charcoal iron is firm at $26, furnace. German competition in the chemical field is so keen charcoal producers fear they will be compelled to raise the charcoal price. Concessions are as high as $2 under the silvery schedule.

St. Louis, April 6.—Pig iron continues dull. The recent reduction by a southern producer has served to disturb ideas of values, and melters are disposed to take only absolute neds. However, the total melt in March was slightly in excess of the corresponding month last year, and about 2 per cent larger than in February this year.

The largest sale was 3000 tons of basic for delivery through April and May. Another steelmaker is inquiring for 2000 tons for April. A machinery maker purchased 500 tons for April and other sales of prompt foundry iron total 800 tons.

No. 2 southern is held by two of the largest furnace interests at $26.17 delivered St. Louis, while another maker has sold at $23.65 delivered St. Louis, which figures back to $18.50 Birmingham. Northern iron is nominally quoted at $24, Chicago, but this price is known to have been shaded on small tonnages. The leading local producer continues to ask $20 to $25.50, f.o.b. furnace.

Birmingham, Ala., April 6.—Furnace interests are maintaining $22, base, on No. 2 foundry, but business is quiet. They say present prices of pig iron are not as high as the average price in 1924. Production in Alabama is heavy, and some iron is going on stock piles. One of the smaller interests is selling a little iron at $20, Birmingham.

Ferroalloys

Ferromanganese Appears Firm Despite Reports

New York April 7.—Domestic makers of ferrotungsten have advanced asking price to $1.05 a pound contained. No sales are yet reported at this level and it appears somewhat lower than this price still can be done. The market may be quoted $1 to $1.05 a pound contained. Ore prices are firm at $11 a short ton unit for wolframite for spot delivery and $10.75 a unit for immediate shipment from Europe. Prices of othe ralloys and ores are unchanged.

Several lots of ferromanganese, aggregating about 1000 tons, have been sold at $115, duty paid tidewater. German ferromanganese is offered at $110 and Indian at $104. Spiegeleisen sales are small at $33, furnace for 20 per cent.

Pittsburgh, April 7.—Ferroalloys constitute one of the most inactive markets in the iron and steel industry. No inquiries nor sales are developing. Advices by cable from English makers of ferromanganese indicate no present possibility of a reduction of the $115, seaboard base level. Domestic producers adhere firmly to that figure. In spiegeleisen, the only activity is in contract specifications or shipping instructions. The price is unchanged at $32 to $33.

Chicago, April 7.—Some unsettlement is apparent in the ferromanganese market but it is understood that the price of $115, duty paid tidewater, still holds.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	32.00 to 33.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, cents per pound contained	1.00 to 1.05
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 3.75
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00

†Duty paid.

The Truscon Steel Co. reports for the year ended Dec. 31, 1924, net income of $908,278, after charges against $1,536,356 in 1923. Gross sales amounted to $21,369,000 against $22,105,000 in 1923.

Coke

Connellsville Prices Working Lower—Ovens Going Out—Concessions Offered Eleswhere

CONNELLSVILLE beehive coke prices continue to settle. The contract market this week is $3.15 to $3.25, as against a minimum of $3.25 a week ago. Spot tonnage is offered at $3 to $3.10, compared with $3.10 and $3.15. A more general asking price of $3.75, minimum, on spot foundry coke is noted. Coke demand is dull in practically all districts: in New England there was some improvement during the week, following a reduction a week ago. Concessions are being offered in the southern Ohio fields, and elsewhere.

Pittsburgh, April 7.—More beehive coke ovens have gone out as activity is restricted. No blast furnaces are contemplating going in. Some of those now in are contemplating going out. Several which will operate either are covered by second quarter contracts or have made arrangements for April fuel. The market on extended shipments is $3.15 to $3.25. Spot sales are down as low as $3 to $3.10. Two single carload sales for nonmetallurgical purposes brought $3.35. One or two gas producers are negotiating large tonnages. The Barden Copper Co. expects to close April 10 on 3500 to 4000 tons for export. One other copper company is interested in smaller tonnage. High sulphur heating coke is quoted $2.50. Medium sulphur heating coke is $2.75. There is not much demand. The foundry coke range still is wide. $3.75 to $4.50. Premium brands are $5 to $5.25, and in box cars 25 cents higher. The Connellsville district apparently is unaffected by the West Virginia coal strike which seems to be entirely unsuccessful.

Production of coke in the Connellsville region for the week ended March 28 was 184,990 tons, compared with 174,990 tons in the preceding week, according to the *Connellsville Courier.*

Boston, April 7.—Brisk demand for foundry coke is reported by New England by-product producers. The new price $11.50, delivered, has served to increase shipping instructions. Foundries are laying in stocks.

Philadelphia, April 7.—Second quarter furnace coke is quotable at $3.10 to $3.25, Connellsville.

Cincinnati, April 7.—Demand for foundry coke still is lacking, and concessions of 50 cents a ton are being offered. Producers of by-product coke report business unsatisfactory. Production has been curtailed further in the Wise county and New River districts.

St. Louis, April 7.—The continued large melt of iron is reflected in good activity in foundry coke. Contracting for second quarter is in fair volume, and current sales of small tonnages for spot delivery are large in the aggregate. By-product makers, to whom virtually all the business is going, report they have no difficulty in disposing of their current output. Prices of foundry coke are steady, the leading west-side producer quoting $11, ovens, and the principal east-side interest holding at $9 f.o.b. Granite City.

New York, April 7.—Coke demand is better. A number of merchants report fair spot sales. Prices are firmer in some directions. Spot beehive now is $4.25 to $5.25, Connellsville. By-product foundry coke continues $10.41, delivered, Newark and other northern New Jersey points.

Coke Prices

Beehive, Ovens

Prices per net ton

Connellsville, furnace	$ 3.00 to 3.25
Connellsville foundry	3.75 to 4.50
Wise county furnace	3.75 to 4.25
Wise county foundry	4.50 to 5.25
Alabama furnace	4.00 to 4.50
Alabama foundry	5.00 to 5.50

By-Product

Foundry, Newark, N. J.; del.	$10.41
Foundry, Chicago, ovens	10.75
Foundry, New England, del.	12.00
Foundry, St. Louis	11.00
Foundry, Granite City, Ill.	9.00
Foundry, Birmingham	5.00 to 5.25

Plates

Market Is Dull—Fabricators Receiving Little Inquiry—Price Settles to 2.00c Minimum

WHILE eastern mills are operating at 20 to 35 per cent of capacity, the leading interest's plate department in the Pittsburgh district is producing on a 100 per cent basis. This illustrates some of the irregular features of the market. Fabricators are not receiving many large inquiries, and consequently are not placing much on mill books. The Steel corporation's vessel subsidiary is a prospective buyer of two lake boats requiring 10,000 tons. Tank inquiries in the East involve 4000 to 5000 tons. Prices have settled to 2.00c to 2.10c, Pittsburgh.

PLATE PRICES, PAGE 958

Pittsburgh, April 7.—Steel plate fabricators are not receiving many inquiries, but the plate mills in this territory are busy. The Carnegie Steel Co. took 3200 tons in the week for railroad work, and is operating its plate department 100 per cent. Other plate manufacturers here are operating at about 90 per cent on the average. Here the market is becoming more clearly defined at 2.00c, although 2.10c still is obtainable on small lots. Barge awards of the week total 1200 tons with 1000 tons pending.

Boston, April 7.—While the plate market is quiet, mills refuse to go below 2.00c, Pittsburgh, or 2.365c delivered. Inquiry includes 500 to 1000 tons for railway and highway bridge work.

Philadelphia, April 7.—Eastern plate output is at 20 to 35 per cent. Demand is comprised of small tonnages for prompt shipment. Few large jobs are in sight. The price 2.00c, base Pittsburgh, continues minimum.

Cleveland, April 7.—A number of good sized tonnages are coming out or are in sight. It develops that the Pittsburgh Steamship Co., a Steel corporation subsidiary, is the prospective buyer of two lake freighters which recently have been pending, requiring about 10,000 tons. The Biggs Boiler Works Co., Akron, is low bidder on 1000 tons for a pipe line at Minneapolis. The Henry Vogt Machine Co., Louisville, will build 10 stills for the Standard Oil Co. of Ohio, about 300 tons. Prices remain in about the same position. The ordinary run of business is going at 2.29c, Cleveland, or 2.10c, Pittsburgh, but larger tonnages bring out 2.00c, Pittsburgh.

Chicago, April 7.—Plates continue to evidence the least strength in price and the lowest volume of business of any of the heavy finished lines. Reports that less than 2.30c, Chicago, have been done in the immediate Chicago territory appear unwarranted, but there is doubt concerning this level in neutral territory. Tank fabricators are credited with 50 per cent operations, on the average.

New York, April 7.—About 4000 to 5000 tons of plates are involved in current oil tank inquiries. This is the largest oil tank demand here in a long time. The Standard Oil Co., New Jersey, wants about 1200 tons. Total bookings of plates here are slightly better, although a few large jobs and railroads inquiries for second quarter are pending. Generally 2.00c, Pittsburgh, is the price, although 1.90c is named on attractive tonnages.

CONTRACTS PLACED

1500 tons, penstock work for Grand Rapids, Mich., understood to have been awarded the Chicago Bridge & Iron Works.
900 tons, six barges for E. T. Slider, New Albany, Ind., to the Jones & Laughlin Steel Corp.
300 tons, two barges awarded the Dravo Contracting Co., Neville Island, Pittsburgh.
225 tons, stand pipe for Bridgewater, Mass., to the Pittsburgh-Des Moines Steel Co.
150 tons, 24-inch x ¼-inch lock bar pipe for West Barton street, Seattle, through Goetz & Brennan, general contractors, to Willamette Iron & Steel Works.
300 tons, 10 stills for Standard Oil Co. of Ohio, to Henry Vogt Machine Co., Louisville.

CONTRACTS PENDING

6000 tons, 14 to 36-inch pipe line for Vancouver, B. C.; bids in April 21.
1000 tons, two 1500-horsepower twin screw tunnel boats for Inland Waterways Corp., Mississippi River Barge Line; bids being taken.
800 to 1000 tons, water line, Minneapolis; Biggs Boiler Works Co., Akron, low bidder.
200 tons, work for Southern Pacific Co.; bids in April 13.
500 to 3000 tons, gas holders for Los Angeles Gas Co., Los Angeles; bids being taken.

Semifinished

Sales Continue Small—Leading Interest Names $37 for Second Quarter Sheet Bars

USERS of semifinished material are buying for the present only in small lots. Unsettled conditions in sheets and unspecified first quarter tonnage are given by some mills as reason for the delay in placing sheet bar requirements. The leading interest has announced $37, Pittsburgh, will apply on its orders for sheet bars for the second quarter, and on the unfilled tonnage carried over from the first quarter. Some of the Pittsburgh mills now are quoting $35.50 on 4 x 4-inch rerolling billets in large quantities.

SEMIFINISHED STEEL PRICES, PAGE 958

Youngstown, April 7.—Unsettled conditions in the sheet market have put a damper on sales of semifinished material. Consumers of sheet bars who purchased material have not arranged for future requirements, and this condition likely will continue until tonnage carried over from first quarter is specified fully. Meanwhile sheet bars are quotable at $37, Youngstown. No call for slabs is apparent although they could be bought at $35.50, Youngstown. The same price is applying on billets 4 x 4 inches and larger. Billets under 4 x 4 inches are quotable at $37, Youngstown.

Pittsburgh, April 7.—The semifinished market is quiet, with practically no inquiries pending. The price situation is becoming somewhat more clarified, with the Carnegie Steel Co. reaffirming its $37 price on sheet bars for second quarter. Unspecified portions of contracts were carried forward on that basis, and some new sales have been made. Independents have adopted that level, although some have not made any adjustments on contracts taken earlier at $39, Pittsburgh.

Some producers of 4 x 4-inch rerolling billets have commenced to quote $35.50 in large quantities, and with the regular $1.50 differential, small billets are quoted at $37. Forging billets are quoted at $40.50 to $45.50, the latter being the price named by at least one seller on blooms of guaranteed forging quality.

Wire rod makers are well filled up with business and not until their own wire products business falls off will they have room for more to be shipped this side of July 1. Skelp is weaker along with plates and now is quotable at 2.00c to 2.10c, but no inquiries are current.

Cleveland, April 7.—Some sales of billets to Cleveland users are about the only semifinished transactions noted during the week. On one lot of 400 tons of 2 x 2-inch billets approximately $37.25, Cleveland, applied; and on another of 250 tons of 4 x 4-inch, the price was $36.50, Cleveland. Sheet bars are $37, Cleveland or Youngstown. Little business has been done since this price was established two weeks ago. Reports that a Cleveland consumer has bought 20,000 to 25,000 tons of sheet bars and slabs are not credited. This user has taken only an experimental lot of 2000 tons of ingots from a local mill, as previously reported, and now is in the market for 5000 tons more of ingots.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	14.00 to 15.00
Boston (dealers)	11.00 to 11.50
Buffalo	16.75 to 17.25
Chicago	15.00 to 15.50
Cleveland	16.75 to 17.25
Cincinnati (dealers)	13.50 to 14.00
Detroit	13.75 to 14.25
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	11.00 to 11.50
Pittsburgh	17.00 to 17.50
St. Louis	15.00 to 15.50
Valleys	17.75 to 18.25

COMPRESSED SHEETS

Buffalo	15.50 to 16.00
Chicago	13.00 to 13.50
Cleveland	13.50 to 14.00
Detroit	11.75 to 12.25
Pittsburgh	16.00 to 16.50
Valleys	15.50

BUNDLED SHEETS

Buffalo	12.50 to 13.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	11.50 to 12.00
Eastern Pennsylvania	13.00
Pittsburgh	15.00 to 15.50
St. Louis	9.50 to 10.00
Valleys	13.75 to 14.25

SHEET CLIPPINGS, LOOSE

Chicago	10.25 to 10.75
Detroit	9.25 to 9.75

STEEL RAILS, SHORT

Birmingham	14.00 to 15.00
Chicago	17.50 to 18.00
Cincinnati (dealers)	16.00 to 16.50
Cleveland (over 6 ft.)	15.50 to 16.00
Detroit	17.50 to 18.00
St. Louis	18.00 to 18.50

STOVE PLATE

Birmingham	14.50 to 15.00
Boston (consumers)	14.00 to 14.50
Buffalo	15.00 to 15.25
Chicago	15.25 to 15.75
Cincinnati (dealers)	10.00 to 10.50
Cleveland	13.75 to 14.00
Detroit (net tons)	12.50 to 13.00
Eastern Pennsylvania	13.50
New York (dealers)	9.50 to 10.00
Pittsburgh	14.00 to 14.50
St. Louis	13.50 to 14.00

LOW PHOSPHORUS

Buffalo	18.50 to 19.00
Cincinnati (dealers)	15.50 to 16.00
Eastern Pennsylvania	20.00 to 21.00
Pitts. billet and bloom crops	21.50 to 22.00

SHOVELING STEEL

Chicago	14.75 to 15.25
Pittsburgh	13.50 to 14.00
St. Louis	15.00 to 15.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	17.25 to 17.75
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	19.50 to 20.00
St. Louis	18.50 to 19.00

FROGS, SWITCHES, GUARDS

Chicago	15.50 to 16.00
Eastern Pennsylvania	15.50 to 16.00
St. Louis	15.50 to 16.00

ANGLE BARS—STEEL

Buffalo	20.50 to 21.00
Chicago	16.50 to 17.00
St. Louis	16.25 to 16.75

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	13.00 to 14.00
Boston (dealers)	14.00 to 14.50
Buffalo, No. 1	14.00 to 14.50
Buffalo, No. 2	16.75 to 17.25
Chicago, No. 1	14.75 to 15.25
Chicago, No. 2	15.00 to 15.50
Cincinnati, No. 1 (dealers)	11.00 to 11.50
Cleveland, No. 1	12.00 to 12.50
Eastern Pennsylvania	18.50 to 19.00
New York, No. 1 (dealers)	16.00 to 17.00
Pittsburgh, No. 1	14.00 to 14.50
Pittsburgh, No. 2	17.00 to 17.50
St. Louis, No. 1	15.00 to 15.50
St. Louis, No. 2	14.00 to 14.50

WROUGHT PIPE

Boston (dealers)	10.75 to 11.00
Buffalo	14.00 to 14.50
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	10.75 to 11.25

YARD WROUGHT

Boston	12.00 to 13.00
Eastern Pennsylvania	17.00 to 18.00

BUSHELING

Buffalo	15.00 to 15.50
Chicago, No. 1	13.00 to 13.50
Chicago, No. 2	9.50 to 10.00
Cincinnati, No. 1 (dealers)	10.00 to 10.50
Cleveland, No .1	12.75 to 13.25
Cleveland, No. 2	12.00 to 12.50
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	14.50 to 15.00
St. Louis, No. 1	13.50 to 14.00

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston (dealers)	7.75 to 8.00
Buffalo	11.00 to 11.50
Chicago	9.50 to 10.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	13.00 to 13.25
Detroit	9.75 to 10.25
Eastern Pennsylvania	13.00
New York (dealers)	9.00 to 9.50
Pittsburgh	13.50 to 14.00
St. Louis	8.50 to 9.00
Valleys	13.25 to 13.50

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	13.50 to 14.00
Boston (dealers)	8.00 to 8.50
Buffalo	11.50 to 12.00
Chicago	12.00 to 12.50
Cincinnati (dealers)	10.50 to 11.00
Cleveland	13.00 to 13.50
Detroit	10.00 to 10.50
Eastern Pennsylvania (chem.)	18.00 to 19.00
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.75 to 10.25
Pittsburgh	13.50 to 14.00
St. Louis	12.50 to 13.00
Valleys	13.50 to 14.00

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	7.50 to 8.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	13.00 to 13.50
Detroit	10.00 to 10.50
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	9.25 to 9.75
Pittsburgh	13.50 to 14.00

PIPES AND FLUES

Chicago	12.00 to 12.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	8.50 to 9.00
St. Louis	11.00 to 11.50

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago	14.25 to 14.75
Cleveland	13.75 to 14.00
Eastern Pennsylvania	13.50
New York (dealers)	14.00 to 14.50
St. Louis	11.50 to 12.00

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Buffalo	14.00 to 14.50
Chicago	11.00 to 11.50
Cleveland (under 10 in.)	13.75 to 14.00
Cleveland (over 10 in.)	11.50 to 12.00
Detroit	10.00 to 10.50
Pittsburgh	15.00 to 15.50

FORGE SCRAP

Boston (dealers)	9.50 to 10.00
Chicago	17.25 to 17.75
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	22.00 to 22.50
St. Louis	20.50 to 21.00

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	9.00 to 10.00
Buffalo	14.50 to 15.00
Chicago	13.50 to 14.00
Cleveland	15.00 to 15.25
Eastern Pennsylvania	14.50 to 15.00
Pittsburgh	16.00 to 16.50
St. Louis	12.00 to 12.50

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston (shipping point)	18.00 to 18.50
Buffalo	17.00 to 18.00
Chicago	18.00 to 18.50
Cleveland	17.25 to 17.50
Eastern Pennsylvania	22.00 to 23.00
Pittsburgh	20.00 to 20.50
St. Louis	19.00 to 19.50

SHAFTING

Boston (shipping point)	17.50 to 18.00
Chicago	19.50 to 20.00
Eastern Pennsylvania	22.00 to 23.00
New York (dealers)	18.50 to 19.00
St. Louis	17.00 to 17.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	16.00 to 17.00
Boston (consumers)	18.00 to 19.00
Buffalo	18.00 to 18.50
Chicago, iron	16.25 to 16.75
Chicago, steel	18.25 to 18.75
Cincinnati	14.50 to 15.00
Eastern Pennsylvania	18.00 to 19.00
New York iron (dealers)	14.00 to 15.00
Pittsburgh, iron	18.00 to 18.50
Pittsburgh, steel	19.50 to 20.00
St. Louis, iron	16.50 to 17.00
St. Louis, steel	18.00 to 18.50

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 17.50
Boston	19.00 to 19.50
Buffalo	16.75 to 17.25
Chicago, No. 1 machinery	18.75 to 19.25
Chicago No. 1 railroad or agricultural	17.25 to 17.75
Cincinnati No. 1 Machinery cupola (net tons dealers)	18.50 to 19.00
Cleveland, cupola	18.00 to 18.25
Detroit (net tons)	15.50 to 16.00
Eastern Pennsylvania, cupola	18.00 to 19.00
New York, cupola (dealers)	14.50 to 15.00
Pittsburgh, cupola	18.00 to 18.50
San Francisco, delivered	26.00 to 27.00
Seattle	17.00 to 18.00
St. Louis, railroad	17.75 to 18.25
St. Louis, agricultural	17.00 to 17.50
St. Louis, machinery	20.00 to 20.50
Valleys	18.50

HEAVY CAST

Boston	16.50 to 17.00
Buffalo (breakable)	14.00 to 15.00
Cleveland	12.00 to 12.25
Detroit (automobile) (net ton)	19.00 to 20.00
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	14.00 to 14.50
Pittsburgh	14.50 to 15.00

MALLEABLE

Boston, railroad	18.50 to 19.00
Buffalo	17.50 to 18.00
Chicago, agricultural	16.50 to 17.00
Chicago, railroad	17.50 to 18.00
Cincinnati, railroad (dealers)	14.50 to 15.50
Cincinnati, agricultural (dealers)	14.50 to 15.00
Cleveland, agricultural	17.75 to 18.00
Cleveland, railroad	19.75 to 20.00
Detroit	18.50 to 19.00
Eastern Pennsylvania, railroad	15.00
Pittsburgh, railroad	17.50 to 18.00
St. Louis, agricultural	14.00 to 14.50
St. Louis, railroad	14.50 to 15.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	14.50 to 16.00
Boston (dealers)	13.50 to 14.00
Chicago	16.50 to 17.00
Cleveland	16.00 to 16.25
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh district	19.00 to 19.50
St. Louis	16.50 to 17.00
New York	17.00 to 17.50

LOCOMOTIVE TIRES

Chicago, No. 1	18.50 to 19.00
Chicago, cut	18.00 to 18.50
St. Louis	17.00 to 17.50

LOW PHOSPHORUS PUNCHINGS

Chicago	16.50 to 17.00
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	20.00 to 20.50

Scrap

All Markets Decline Further—Consumers Lack Interest—Supply Is Too Large

LACK of interest by consumers and a heavy supply from railroad, automobile and other sources have combined to depress the scrap market further. Offers by some consumers are so low dealers hesitate to sell, fearing inability to cover at the price. Some signs that the market may be near bottom have appeared here and there but prices continue their weekly decline. Users and dealers appear to be waiting for more assurance before making a positive move, and producers are accumulating stocks no one desires to buy.

Chicago, April 7.—An independent steel maker has placed a round tonnage of heavy melting steel scrap at $15.50 and is understood to have refused offers of additional tonnage at this price. Dealers generally agree that the steel market is represented by $15 to $15.50, with little strength. Most grades are 50 cents a ton lower than a week ago and consumers continue apathetic. A dealer has been able to buy agricultural cast at $15.50, net, delivered. A sale of iron angle bars is reported at $17, net. Railroad offerings are bringing slightly more than the published quotations. The largest of six railroad scrap lists is 1400 tons by the Pullman Car & Mfg. Corp.

Boston, April 7.—Iron and steel scrap continues dull but some inquiry is appearing. The Boston & Albany railroad sold 600 tons, mostly heavy melting steel above the general market. A Bridgeport, Conn., consumer is offering $14 delivered for stove plate which is too low to move tonnage from the Boston district.

New York, April 7.—Weakness is still manifested in the local scrap market and dealers have marked down prices on cast iron car wheels, wrought pipe and heavy melting and No. 1 railroad steel. Trading generally is as slack as at any time this year. The Bethlehem Steel Corp., normally the largest buyer, is out of the market on railroad steel and is buying only limited tonnages of borings and turnings. Alan Wood Iron & Steel Co., Conshohocken, Pa., is perhaps the latest buyer of heavy melting steel, paying around $15 delivered.

Philadelphia, April 7.—Efforts of scrap dealers to sell heavy melting steel at $16, delivered, have failed, consumers refusing to consider it. The market here is dull and forced lots bring lower prices.

Buffalo, April 7.—The scrap market is quiet, dealers providing most activity by purchases for shipment on contracts expiring within the next 10 days. Low offers of steelworks are keeping them practically out of the market for heavy melting steel.

Pittsburgh, April 7.—The scrap market continues weak, with heavy melting steel quoted at $17 to $17.50, the basis of last sales. Dealers are unwilling to take on large orders at such low figures for fear they will not be able to cover. Prices on practically all grades are 50 cents or $1 per ton lower than they were a week ago. Levels fast are reaching the point where dealers will lay the material down in their yards rather than sell. Heavy melting steel on the Pennsylvania railroad's list brought $17.35 to $18.20, the latter from dealers who had to cover shorts.

Cleveland, April 7.—Iron and steel scrap continues to move slowly in this district. Consumers are not interested beyond spot needs and some are restricting contract shipments. Inquiries also are light. Prices are weak with a few grades somewhat lower than a week ago.

Cincinnati, April 7.—Absence of large consumer buying has resulted in several dealers marking prices down another 50 cents a ton. Quotations generally are nominal in absence of trading. Recent railroad lists brought low prices. Aside from specialties consumers manifest no interest in the market.

Detroit, April 7.—A condition close to stagnation continues in iron and steel scrap. Much scrap is coming out and considerable difficulty is found in moving it.

St. Louis, April 6.—Iron and steel scrap continues quiet and weak. There has been some buying in a small way of special material but with the exception of 1000 tons taken by a local melter nothing in the way of real tonnage has changed hands. Further price reductions have been made, but not so drastic as during the final week of March.

Nothing is arriving from the country, and at present prices the movement from southern and western shipping points can not improve. Railroad offerings were smaller, consisting of 500 tons by the Chicago & Eastern Illinois, 1300 tons by the Frisco, 1500 tons by the Missouri Pacific, 7000 by the Chicago Burlington & Quincy, and 1600 tons by the St. Louis & Hannibal railroad. The latter list was the first by this road in 10 years.

Birmingham, Ala., April 6.—Little buying of iron and steel scrap is being done. The waiting game between consumers and producers of pig iron affects the old material market.

Sheets

Market Remains Quiet—Mills Unable to Accumulate Backlogs—Black Sheets Settle at 3.40c

QUIET conditions continue to prevail in the sheet market. While some mills in the Pittsburgh district have taken fairly good tonnages during the week, the majority of producers lack forward orders and no change is noted in mill operations. Makers are able to give prompt delivery, and buyers apparently are taking advantage of this fact by ordering only as their needs arise. The price situation is practically stationary, except for further slight weakness in quotations on black sheets. More independent mills have gone to 3.50c, valley.

SHEET PRICES, PAGE 958

Youngstown, April 7.—Quiet conditions continue in the sheet market. Buyers in some cases have taken care of their future requirements but the largest portion are taking tonnage out of the market as their needs arise. With such hand-to-mouth buying, producers have had little opportunity to gather tonnage with the result that backlogs are light. District mills this week are operating at 70 per cent capacity, the same as a week ago. While black sheets a week ago ranged from $3.40c to 3.50c the lull in demand has led some producers to seek business at 3.30c. Few producers here have met competition at the minimum price mentioned and while 3.50c still is being obtained by certain mills the tendency of the market is to settle at 3.40c. Blue annealed is unchanged at 2.60c to 2.70c. While galvanized sales have been made at 4.50c, makers state they have not had to go below 4.60c. Conditions in the high-grade sheet market remain unchanged with most tonnage going for immediate delivery. The market ranges from 4.40c to 4.50c.

Boston, April 7.—Demand for steel sheets shows improvement. One mill reports sales in the past week were double those of the week preceding. The downward price tendency apparently has been halted.

Philadelphia, April 7.—Sheet prices are weak. Blue annealed are 2.50c to 2.60c, base Pittsburgh, with even lower in some instances. Black sheets are 3.30c to 3.40c, and galvanized 4.40c to 4.50c.

Pittsburgh, April 7.—An increasingly encouraging amount of sheet business is developing for some makers in this territory. Others report a continued falling off of new business. Large interests here

report several orders received in the past few days by telegraph for shipment quickly, indicating that stocks are low. One of these for 2200 tons of assorted grades, including some blue annealed and galvanized, represents about 50 per cent of that particular customer's normal requirements annually, and shipment will be completed within three weeks. Another such order calls for 500 tons of pickled sheets and a third wants several thousand sheets for automotive purposes. Several orders of a rush character have come from the automotive industry. The American Sheet & Tin Plate Co. continues to quote and receive 2.70c, 3.50c, 4.60c and 4.50c on blue annealed, black, galvanized and full finished sheets, respectively. Some independents are maintaining similar levels, while others quote $2 under on both blue annealed and full finished, and $3 per ton less on black and galvanized. Sheet operations generally are unchanged, independents being on a somewhat better basis than the leading interest. Between 70 and 75 per cent is the general average. The largest producer reports shipments through March well ahead of the same period last year.

Chicago, April 7.—Sheet mill operations in Chicago continue 90 per cent or better but it is becoming increasingly difficult to round up the requisite specifications for this pace. The situation in sheets is the least satisfactory of all finished lines. Opinions differ widely concerning the market but it seems that a fair range at Chicago is 3.65c to 3.75c for black sheets, 4.75c to 4.85c for galvanized and 2.75c to 2.85c for blue annealed.

Tin Plate

Mills Still Have Good Backlogs—Market Continues Strong

TIN PLATE PRICES, PAGE 958

Pittsburgh, April 7.—Tin plate makers still are well fortified with orders, notwithstanding recent heavy shipment against first half backlogs. Some of them can produce at certain mills throughout the first half, such as the American Sheet & Tin Plate Co., at its western plants. This interest continues to operate at above 85 per cent of capacity, while independents are operating at 90 to 100 per cent. While nothing much is expected in the way of additional business from the oil industries, general line container manufacturers, it is thought, will require additional supplies for third quarter shipment in large tonnages as soon as the books are opened for the last half. The market price continues unchanged and strong at $5.50 per base box.

Strip Steel

Buyers Furnishing More Liberal Specifications—Some Contracts Placed

STRIP PRICES, PAGE 958

Pittsburgh, April 7.—Strip buyers are furnishing more liberal specifications against contracts. Several additional contracts for attractive tonnages were placed this week, principally by the automotive industry. Cold strips are firm at 4.00c, with small lots bringing 4.15c. Hot strips are quoted at 2.20c to 2.40c, depending upon the width, as reported in the March 26 number of IRON TRADE REVIEW. Operations are a little below 70 per cent on the average.

Labor Case Is Postponed

New York, April 7.—Court hearings in the suit of several leading fabricators here to make permanent a temporary injunction issued against striking ornamental ironworkers has been postponed from April 3 to April 14. The hearing will be held in the United States district court before Judge Knox.

Pipe

Mill Bookings Steady But Not Large—Awards of Large Cast Iron Tonnages Delayed

BOOKINGS of pipe by mills are not heavy but operations continue above 90 per cent for large makers. No line pipe projects are active although several are contemplated. Award of contracts on several large tonnages, 12,960 tons at Detroit and 12,000 tons at Oneida, N. Y., is being delayed. French interests are low on parts of the Detroit and all of the Oneida projects. Municipal inquiry is lacking in the East and awards are confined to small tonnage lots. Prices show no further weakness.

PIPE PRICES, PAGE 958 AND 994

Pittsburgh, April 7.—Features are absent from the pipe market. Miscellaneous business keeps coming in at a fairly rapid rate from jobbers and large users. Operations are 90 per cent or higher on the part of large makers, while 80 to 85 per cent is the schedule of some smaller mills. No large line pipe installations are being ordered or sought, but one or two are contemplated in the South and West. Merchant pipe as well as oil country jobbers, from time to time, are ordering replacements.

New York, April 7.—While award of 12,000 tons of cast iron pipe for Oneida, N. Y., was scheduled to be made April 3, no action has yet been taken. As noted in last week's issue, B. Nicoll & Co., representing a French maker, submitted the lowest of two bids. New municipal inquiry is relatively slack. There appears to be a postponement of much of the seasonal buying. Prices are unsettled.

Chicgo, April 7.—Milwaukee has rejected all bids on 2500 tons of cast iron pipe received March 17, but whether it will readvertise has not been decided. The Detroit council was to act tonight on the bids received, March 26, on 12,960 tons. If the low bidders obtain the business, the 24, 30 and 42-inch pipe will go to a French maker, the 12-inch pipe to the Standard Cast Iron Pipe Co. and the 16-inch pipe to James B. Clow & Sons. Riverside, Ill., opened bids today on 1000 tons. Shipments and new business about balance with most makers. The market at Chicago continues to be $46.70 to $48.20 on 6-inch and over and $50.70 to $52.20 on 4-inch.

Los Angeles placed 800 tons of joint pipe and 1600 tons of standard screw pipe with the Crane Co.

Birmingham, Ala., April 6.—Cast iron pipe production continues steady and demand is good, local shops being booked for three months. Foreign pipe competition is keen. Quotations are $40 per ton on 6-inch and over pipe but reports are current that $1 to $1.50 per ton lower can be done.

CONTRACTS PLACED

630 tons, 6 and 8-inch class C pipe for San Bernardino, Calif., to United States Cast Iron Pipe & Foundry Co.

131 tons, 4-inch class C pipe for San Bernardino, Calif., to American Cast Iron Pipe Co.

120 tons 2-inch pipe for Los Angeles, to McWane Cast Iron Pipe Co.

CONTRACTS PENDING

3500 tons, Vernon, Calif.; bids in.

100 tons, 4 and 10-inch class B pipe for Santa Ana, Calif.; bids in.

1000 tons, Riverside, Ill.; bids April 7.

1200 tons, 48-inch cast iron pipe, for the city of Boston; bids being taken.

Bolts, Nuts, Rivets

Users Increasing Use and Prices Are Firmest for Months

NUT AND BOLT PRICES, PAGE 958

Chicago, April 7.—While specifications for bolts and nuts have not improved a better and healthier feeling pervades the market. The slow improvement in the automobile industry continues and implement makers are pressed to meet tractor business. Makers claim that at no time in the past year have prices been so firm. The market generally is on the basis of 50, 10 and 10 off for large machine bolts.

Pittsburgh, April 7.—Nut, bolt and rivet makers still regard orders as below what they should be. A slight improvement is noted although buying still is on a hand-to-mouth basis. Nut and bolt prices are firm, but conces-

sions are granted on attractive rivet business.

Cleveland, April 7.—Fair orders continue to be received by bolt and nut producers. Slow improvement has been noticeable for the past few weeks. Prices are firm. Rivet orders are small and inquiry shows little improvement. Some shading of rivet prices has been encountered recently by makers in this district. This, however, has not been general.

New York, April 7.—Price cutting is appearing on rivets and attractive business has been booked at 2.50c, base Pittsburgh, on both structural and boiler type.

Refractories

Specifications Somewhat Less as New Construction Needs Are Met

REFRACTORIES PRICES, PAGE 991

Pittsburgh, April 7.—Specifications against refractory contracts continue to be received each week but not in as large volume as recently. Some kilns are operating 65 to 70 per cent of capacity and while one plant achieved 85 per cent last week, the average is no higher than 70 per cent. Practically all new construction has been taken care of and orders now are for prompt needs, mostly repair. Some falling off in steel mill operations is responsible for some brick orders, the time being opportune for making repairs and relinings. Attractive specifications started coming in last week on chrome brick. Although practically all consumers are under contract at lower figures, occasionally a new order for chrome brick is placed at $48. Other prices are firm.

Hoops and Bands

Better Volume of Orders Being Received by Most Makers

HOOP PRICES, PAGE 958

Pittsburgh, April 7.—Hoop and band buying has slackened in some directions but one or two producers report an influx of business. Various consuming lines are represented, led by the automotive and cooperage industries. On hoops and bands 6 inches and narrower, the minimum quotation is 2.40c. On the wider sizes, 2.20c is obtained. Operations are between 70 and 75 per cent of capacity.

Cut Nails Are Steady

Pittsburgh, April 7.—Cut nails still are quotably unchanged at 2.90c in carloads. Little or no change in the situation is encountered, demand being fair.

The National Acme Co., Cleveland reports for the year ended Dec. 31, 1924, a net loss of $626,649 after charges, contrasted with net profits of $240,717 in 1923.

Bars

Prices Hold in Spite of Lessened Buying—Mill Backlogs Sustain Operation

BUYING is still slow in merchant bars but mills have sufficient backlogs to keep operations at the current level for some time. Specifications against tonnages carried over from first quarter are being made fully but not much is being ordered out on actual second quarter contracts. Numerous consuming lines are increasing their requirements. Prices are holding well though effort is being made to obtain concessions. Bar iron is steady, though Chicago shows some weakness and shading might follow an attractive order.

BAR PRICES, PAGE 958

Chicago, April 7.—Mills appear to be holding soft steel bars at 2.20c, Chicago. Many efforts have been made to break this price and reports of shading are not lacking, but in Chicago proper 2.20c undoubtedly is the market. Producers believe their backlogs will tide them over the present gap in buying. Pittsburgh makers have taken more business in neutral territory. Some reinforcing bar warehouses are now getting part of the tonnage they specified for February rolling. Implement makers have stepped up their buying slightly. No decrease in consumption of bars is apparent. Last week's specifications and new business were individually the best in two months. While bar iron is quoted at 2.10c, Chicago, a tonnage would shade this level $1. Rail steel is unchanged at 2.00c to 2.10c, Chicago, and like bar iron the volume of new business is not satisfactory.

Boston, April 7.—Specifications for second quarter delivery show improvement and actual sales at Boston of the past week increased fully 25 per cent above the previous week. Prices except for unusually large lots hold firm at 2.10c, Pittsburgh or 2.465c delivered.

Buffalo April 7.—Nearly all sellers quote bars at 2.365c, Buffalo, or 2.10c, Pittsburgh. Bookings of the last week were only fair.

Philadelphia, April 7.—Specifications for second quarter steel bars are starting much more slowly than for first quarter. Many consumers were able to continue first quarter contracts through second quarter at 2.00c, Pittsburgh. Iron bars are 2.00c, Pittsburgh or 2.32c, delivered Philadelphia.

Pittsburgh, April 7.—Backlogs of merchant steel bars are being specified against gradually since shipping and operating rates continue high. Jobbers are active and automotive industries are making considerable headway. Bar mills in the Pittsburgh territory are operating at 85 to 89 per cent of capacity, the latter being the basis of Carnegie Steel Co. Some producers find orders for March this year exceeded those of March last year, and February this year. Refined iron bars still are enjoying a demand with operations practically full. Prices are firm at the minimum of 3.00c.

Cleveland, April 7.—The price situation in steeel bars appears softer. First quarter contracts at 2.00c, Pittsburgh, or 2.19c, Cleveland, have been extended into the second quarter and here and there some additional tonnage added, where it has been attractive, at the same price. The open and more general quotation, however, remains 2.19c, Cleveland, or 2.10c, Pittsburgh. New business is keeping up to about its recent average and the mills still are running on first quarter specifications which have been heavy.

Cold Finished Steel

Steady Improvement Continues and Market Is In Good Condition

Pittsburgh, April 7.—For three or four weeks the cold-finished bar market has shown a steady trend toward improvement. The automotive industry continues to hold purchases in check to harmonize with sales rather than with operating schedules, so that much buying remains to be done. Specifications are more lively from other consuming lines and the situation is considered entirely healthful. The price is unchanged at 2.70c to 2.80c.

Machinery Is Gift

Mrs. William Whigham, widow of the late vice president of the Carnegie Steel Co., has presented valuable equipment to the machine shop in the college of industries, according to an announcement from the Carnegie Institute of Technology, Pittsburgh. The equipment was used by Mr. Whigham for experimental purposes. Mrs. Whigham made the gift as a memorial to her husband. A bronze plate commemorating the gift will be cast in the foundry of the college of industries and will be included with an exhibit of the equipment exhibition night April 24.

Implement Exports Gain

Washington, April 7.—Exports of agricultural implements and farm equipment in January and February totaled $250,000 more than for the same two months of 1924, according to data just compiled by the department of commerce. February exports were valued at $4,435,309 as compared with $4,595,268 in January. Of the February total $1,038,508 was of wheel tractors. Exports of agricultural implements for the eight months ended February 1925 were valued at $35,865,317.

Structural Shapes

Inquiries Aggregate High Tonnage—Awards Fewer and Smaller—Some Softness Is Shown in Mill Prices

STRUCTURAL shape inquiries are more numerous with a heavy aggregate tonnage being figured. Featuring pending work is the New York Edison Co. power plant at New York, which is to take from 17,000 to 18,000 tons. The largest new item of the week requires 6000 tons for a theater and office building at New York. Chicago building records last month exceeded those of March 1924. Mills are in better position than fabricators, all but eastern makers operating from 80 to 90 per cent. Foreign competition has been felt along the Atlantic Coast, where smaller mills are operating below 40 per cent of capacity.

Prices in the East also reflect keen competition, with Boston and Philadelphia being the center of weakness Other centers hold at the equivalent of 2.10c Pittsburgh with shading on good tonnages and Chicago at 2.30c base

STRUCTURAL SHAPE PRICES, PAGE 958

New York, April 7.—Inquiries and orders for structural steel are more numerous, although involving little tonnage. The contract for 17,000 to 18,000 tons for the Fourteenth street power station of the New York Edison Co. is expected to be awarded soon. A leading inquiry calls for 6000 tons for a theater and office building for the Famous Players-Lasky Corp. Much work is in contemplation. Larger fabricators are fairly well booked but smaller ones are in a less favorable position, and it is in the latter that cause is seen for the present drooping market. Plain material is holding at the equivalent of 2.05c, Pittsburgh, with shading on sizable tonnages.

Philadelphia, April 7.—Some structural shape business here was done last week at slightly under 1.90c, base Pittsburgh, although the usual range is 1.90c to 2.00c. Two large eastern makers are rolling shapes at 70 to 75 per cent of capacity. Smaller mills are operating intermittently, not averaging above 40 per cent.

Cincinnati, April 7.—Insofar as large tonnage awards are concerned the structural market in this district is quiet, but small jobs continue numerous and are largely responsible for the stability of the situation. While the award of the 3500 tons for a bridge across the Ohio river at Huntington, W. Va., has not been confirmed, the Mt. Vernon Bridge Co. is low bidder. Plain shapes are quoted at 2.10c, Pittsburgh, with some makers attempting to get 2.20c.

Chicago, April 7.—Chicago makers say they are holding to 2.30c, Chicago, for plain material and that whatever softness has developed in this price is not within the immediate Chicago district. Much structural work is pending but little is being placed. The mills are receiving heavy specifications against contracts taken a few months ago. Building permits in Chicago in March topped those of last March, making three consecutive months in which they have exceeded 1924.

Cleveland, April 7.—Little structural activity was noted during the past week here. Inquiries continue numerous but small, and awards lack tonnage. Plain material prices are easier with 2.29c Cleveland or 2.10c Pittsburgh the open market. On large tonnages 2.00c Pittsburgh has been quoted. Fabricated prices are held firmly by larger interests. A small Ohio fabricator, however, last week cut the market approximately $20 a ton on a fair-size tonnage.

Pittsburgh, April 7.—Structural shape mills are maintaining a price of 2.10c. Fabricators still are offering keen competition on new work. Inquiries are plentiful although most involve small tonnages. Many awards made last week require less than 100 tons each. Mills in this vicinity are operating on backlogs at 80 to 90 per cent of capacity.

Boston, April 7.—General demand for structural shapes has improved in New England and new work looms as large as at any time this year. The Statler hotel with 8000 tons again is active. Legal difficulties have been removed and the Five Cents Savings bank with 1200 tons is now going ahead. Prices range from 2.365c to 2.465c delivered.

Awards Compared

	Tons
Awards this week	19,055
Awards last week	14,556
Awards two weeks ago	63,452
Awards this week in 1924	15,731
Average weekly awards, March	30,868
Average weekly awards, 1925	35,288

CONTRACTS PLACED

3000 tons, steel sheet piling, Ohio river dam, let by Federal engineers, **Louisville, Ky.**, to Carnegie Steel Co.

1600 tons, Fayette-Greene county bridge, Masontown, Pa., to the Independent Bridge Co.

1500 tons, West Virginia state highway bridges, distributed among several independent fabricators 225 tons going to the Pittsburgh-Des Moines Steel Co.

1400 tons, Catholic high school, Fiftieth street, New York erroneously reported previously as placed, has just been awarded A. E. Norton, Inc.

1200 tons, power house for United Power & Light Co., Columbus, O., to Pittsburgh-Des Moines Bridge Co.

1000 tons, stock for Emsco Steel Products Co., San Francisco, to eastern mill.

1000 tons, Fifth Avenue Coach Co., 132nd and Broadway, New York, to Levering & Garrigues Co.

900 tons, Germantown hospital, Germantown, Pa., to the Phoenix Bridge Co.

749 tons, city of Chicago for Roosevelt road viaduct, to Milwaukee Bridge Co.

700 tons, bridges for the Seaboard Air Line, to the Virginia Bridge & Iron Co.

700 tons, miscellaneous work, including 550 tons for the mothers' house, Sisters of Divine Providence, near Sharpsburg, Pa., to the W. N. Kratzer Co.

600 tons, Illinois Central railroad viaducts, to American Bridge Co.

600 tons, bridge for Florida East Coast, to Virginia Bridge & Iron Co.

532 tons, Union Pacific railroad bridges, to American Bridge Co.

500 tons, Barras apartment, 45 Fifth avenue, New York, to Easton Structural Steel Co.

350 tons, high school, Newtonville, Mass., to Boston Bridge Co.

300 tons, four turntables for the Atlantic Coast Line, to the American Bridge Co.

300 tons, Municipal Safety building, Johnstown, Pa., to McClintic-Marshall Co.

300 tons, theater, Hempstead, L. I., N. Y., to Easton Structural Steel Co.

276 tons, medical laboratories for University of Iowa, Iowa City, to unstated fabricator.

250 tons, plant for McCaskey Register Co., Alliance, O., to Alliance Structural Steel Co.

250 tons, Pennsylvania railroad bridge, Louisville, O., to the American Bridge Co.

200 tons, Gorman office building, Providence, R. I., to Levering & Garrigues Co.

200 tons, Camden street station for Edison Electric Illuminating Co., Boston, to New England Structural Co.; I. F. Woodbury & Sons, Boston, general contractor.

183 tons, viaduct for Powers-Thompson Construction Co., Joliet, Ill., to American Bridge Co.

165 tons, apartment house, Pine and Stockton streets, San Francisco, to Golden Gate Iron Works.

165 tons, garage, Yonkers, N. Y., to the McClintic-Marshall Co.

120 tons, Wilson theater, Fresno, Calif., to Mortenson Construction Co.

115 tons, high school, Biddeford, Me., to New England Structural Co.

100 tons, high school, Eureka, Calif., to Eureka Boiler Works.

100 tons, Woolworth building, Springfield, Mass., to G. Haarman & Co., Inc.

Tonnage unstated, plant at Hamilton, Ont., through H. K. Ferguson Co., Cleveland, engineer and builder, to Hamilton Bridge Co.

CONTRACTS PENDING

8000 tons, Statler hotel, Boston; bids being taken for refiguring.

6000 tons, theater and office building for the Famous Players-Lasky Corp., Forty-third to forty-fourth street on Broadway, New York; bids asked.

5000 tons, Ambassador theater, St. Louis; pending.

4600 tons, Central Park West subway extension, New York, general contract awarded J. F. Cogan Co., Inc., Grand Central Terminal, New York.

3500 tons, bridge for Huntington & Ironton railroad; Mt. Vernon Bridge Co., low bidder.

2700 tons, apartment at Seventeenth and Locust streets, Philadelphia; Barras Construction Corp., 366 Madison avenue, New York, awarded general contract.

2600 tons, municipal auditorium at Indianapolis; pending.

2500 tons, Schroeder & Koppel loft building, Thirty-ninth street and Sixth avenue, New York; pending.

2000 tons, state capitol at Lincoln, Neb.; pending.

1200 tons, high school, Cleveland Heights, O.; bids in.
1000 tons, hotel, Oklahoma City; bids being taken.
1000 tons, Central Athletic association building, Pittsburgh; bids being taken.
1000 tons, Walter Mason loft building, 25 West Forty-seventh street, New York, pending; owing to typographical error, this was reported last week as involving 100 tons.
900 tons, transmission towers for Pacific Gas & Electric Co., San Francisco; bids in.
900 tons, Boys Catholic High school, Philadelphia; bids asked.
800 tons, Lackawanna railroad bridges; pending.
800 tons, Elks' club, Buffalo, N. Y.; bids in.
700 tons, garage, Philadelphia; bids asked.
700 tons, shops for the Carolina Clinchfield & Ohio railroad, at Erwin, Tenn.; pending.
700 tons, plant for Aberfoyl Mfg. Co., Chester, Pa.; pending.
200 tons, church, Erie, Pa.; pending.
650 tons, First National bank building, Tampa, Fla.; bids closed.
600 tons, Brooklyn Trust Co., Brooklyn, N. Y.; pending.
500 tons, bascule bridge for the Delaware, Lackawanna & Western; bids asked.
500 tons, Physicians' and Dentists' building, 431 Penn avenue, Pittsburgh; bids to be asked soon.
500 tons, office and warehouse, West Penn Railways Co., South Arch street, Connellsville, Pa.; bids being taken.
400 tons, Mossdale bridge, Stockton, Calif., Minneapolis Steel & Machinery Co. low bidder.
400 tons, plant at Baltimore; bids asked.
400 tons, First Trust & Savings bank, Miami, Fla.; pending.
400 to 500 tons, channels for barge for Chicago, Milwaukee & St. Paul railroad at Seattle; bids being received.
300 tons, Utica hotel, Utica, N. Y.; pending.
300 tons, two bridges for the Erie railroad; pending.
300 tons, warehouse for the Eagle Lock Co., Terryville, Conn.; bids asked.
300 tons, theater, Camden, N. J.; bids asked.
300 tons, office building Tenth and Broadway, Oakland, Calif.; bids being received.
300 tons, garage, Eleventh avenue and Thirty-fifth street, New York; bids asked. A. P. Hess, 345 Madison avenue, architect.
250 tons, plates and shapes for Southern Pacific Equipment Co., San Francisco; bids being received.
250 tons, St. Patrick's Catholic Church, Fourth avenue, Ninety-fifth street, Brooklyn, N. Y.; bids asked.
200 tons, First National bank, Hoboken, N. J.; bids asked.
200 tons, municipal housing station, at Sixty-second road and Ninety-fourth street, Queens, New York; bids asked.
200 tons, Thomas Jefferson high school athletic club, New York; pending.
180 tons, bridge work at Springfield, Mass., for the Boston & Albany railroad; bids in.
150 tons, reception building, for a hospital in Clarkson street, Brooklyn, N. Y.; bids asked.
140 tons, power plant addition, Lowell, Mass.; general contract awarded Stone & Webster, Inc., Boston; bids in.
125 tons, theater, Harvard Square, Cambridge, Mass.; bids being taken.

Concrete Bars

Awards Continue Comparatively Low—Inquiries Gain Steadily

AWARDS of concrete reinforcing bars during the past week were featured by closing on 5500 tons for a Brooklyn, N. Y., sewer, for which Belgian bars will be furnished. Many road projects are active, one Cleveland interest bidding on work in six middle western states. Another Buffalo elevator, involving 3000 to 4000 tons, features inquiries. Most new inquiries are for small tonnages. Mill prices continue firm but warehouse quotations show weakness in some distributing centers.

REINFORCING BAR PRICES, PAGE 958

Chicago, April 7.—Reinforcing bar awards still are low compared with the volume of pending work and competition is sharp. Some reinforcing warehouse interests have become convinced that the mill price on billet bars will hold at 2.20c, Chicago, and that apprehension of prospective builders that the market on reinforcing bars will drop below 2.70c, Chicago warehouse, are unfounded. Warehouse stocks of bars are low and warehouses are unable to get much over half of the tonnage they specify to the mills. Close to 4000 tons of bars is involved in projects that should be closed shortly.

Cleveland, April 7.—Activity in the local concrete bar market is confined to inquiries, many new projects being figured. Most involve but small tonnages. One Cleveland bar interest is figuring roadwork contracts in six middle western states. New billet bar prices are firm at 2.29c Cleveland, or 2.10c Pittsburgh, with some 2.39c Cleveland tonnage being booked. Rail steel bars continue 1.90c to 2.00c mill.

Pittsburgh, April 7.—Delays are occurring in connection with most of the construction inquiries pending involving the use of reinforcing concrete bars. The general market is 2.10c although some sellers unsuccessful in obtaining awards recently, are maintaining 2.20c, a nominal figure.

Boston, April 7.—Concrete bar prices are weak due partly to threatened foreign competition. Boston prices have dropped to 2.80c warehouse.

Buffalo, April 7.—Another new elevator to be erected in the Buffalo waterfront, the fifth to be announced this season, will require 3000 to 4000 tons it is estimated although detailed plans are incomplete. Some small lots of material for road construction have been booked at 2.75c, while large lots of uniform length from mills can be had at 2.465c, both Buffalo basis.

Cincinnati, April 7.—Awards of reinforcing bars the past week showed an improvement in tonnage over the week previously. Large tonnages are pending. New billet bars for shipment out of Cincinnati warehouse are quoted at 3.30c.

New York, April 7.—Reinforcing bar demand is featured by award of 5500 tons for the Flatlands sewer, for which Belgian bars will be furnished.

Awards Compared

	Tons
Awards this week	10,850
Awards last week	2,515
Awards two weeks ago	5,300
Awards this week in 1924	3,823
Average weekly awards, March	7,111
Average weekly awards, 1925	6,366

CONTRACTS PLACED

5500 tons, Flatlands avenue, sewer, Brooklyn, N. Y., to Wm. H. Muller & Co., New York, for shipment from Belgium. General contractor, P. J. Carlin Construction Co., New York. Concrete Steel Co. previously had booked 500 tons for this job.
1000 tons, Illinois road work, 500 tons each to Truscon Steel Co. and Olney J. Dean & Co.
700 tons, for Guernsey dam, Mitchell, Nebr., Utah Construction Co. general contractor, bars placed with unknown interest.
500 tons, Hearst Hall, Berkley, Calif., to Edw. L. Soule. Co.
500 tons, warehouse for Charles J. McCullough Seed Co., Cincinnati, to Bourne-Fuller Co.
350 tons, Wilson theater, Fresno, Calif., to Kyle & Co.
300 tons, building for Plankinton Packing Co., Milwaukee, to Kalman Steel Co.
300 tons, Pennsylvania state highway commission road work, to the Kalman Steel Co.
250 tons, high school, Eureka, Calif., to United States Steel Products Co.
200 tons, American Woolen Works, Andover, Mass., to Truscon Steel Co.
200 tons, paving and road work in vicinity of Cleveland, to Paterson-Leitch Co.
160 tons, Bulletin building, San Francisco, to Edw. L. Soule Co.
150 tons, additional for packing plant for Miller & Hart, Chicago, to American System of Reinforcing.
120 tons, White Metal Mfg. Co., Hoboken, N. J., to Truscon Steel Co., United Fireproofing Co., New York, general contractor
120 tons, Gretsch Engineering Co., Brooklyn, N. Y., to Truscon Steel Co., Commonwealth Engineering Corp., general contractor.
100 tons, nurses' home, Mercy hospital, Pittsburgh, to the American Steel & Engineering Co.
100 tons, Five Cents Savings Bank, Boston, to Barker Steel Co.
100 tons, garage, Providence, R. I., to Truscon Steel Co.
100 tons, Shriners' hospital, Oak Park, Ill., to Concrete Engineering Co.
100 tons, Camillus Cutlery Co. building, Camillus, N. Y., to Kalman Steel Co., Thompson & Binger, New York, general contractor.

CONTRACTS PENDING

550 tons, Statler hotel; bids being taken for refigure.
400 tons, Commodore apartment hotel, Chicago; plans by Hall, Lawrence, Rippel & Ratcliffe, 123 West Madison street, Chicago.
300 tons, Children's hospital, Cincinnati; Hodges-Erwin Co. awarded general contract.
150 tons, building for the Pierpont Motor Co., Baum boulevard and Morewood avenue, Pittsburgh, general contract awarded Conley & De Mey.
150 tons, University club, Boston; general contract let to W. A. & H. A. Root, Boston.
100 tons, 4-story store and office building at Howard street and North Ashland avenue, Chicago. Plans by Alfred S. Alschuler, 28 East Jackson boulevard, Chicago.
100 tons, 4-story hotel for Biedermann & Dougherty, 173 West Washington street, Chicago. General contract to Adolph Lindstrom Co., 77 West Washington street, Chicago.
100 tons, high school, Newtonville, Mass.; bids in.
100 tons, reservoir for Mt. Union, Huntington county, Pa.; bids being taken.
100 tons, Southern railways shops at Princeton, Ind.; Dwight P. Robinson Co., New York, general contractor.
Tonnage unstated, Ohio Bell Telephone Co. building, Toledo, O.; plans out.

Rails, Cars

Southern Pacific Awards 3400 Cars — Rails Inactive — March Freight Car Total Down

SOUTHERN Pacific's award of 3400 cars featured the railroad equipment market for the past week. This is the largest car award in 1925, and is double the total awards in January. Chicago mills will furnish 22,000 tons of steel for the part booked there. Little activity is noted in rails, miscellaneous small lots being awarded. Interest in track accessories also has diminished. Tie plate competition is keen at Chicago and prices are weak there. March car awards total 4730 as compared with 5510 in February.

RAILROAD TRACK MATERIAL PRICES, PAGE 958

New York, April 7.—Award of 3400 cars by the Southern Pacific is the leading development in the car market. All other orders for the past few days have been restricted to small lists and much the same can be said of inquiry. A leading locomotive order calls for 12 for the Chile Exploration Co., award going to the Baldwin Locomotive Works. The Kansas City, Mexico & Orient, is inquiring for four oil burning locomotives. Action has been postponed on 8000 tons of 100-pound rails for South Manchurian railways. way for $30,000.

Domestic freight car buying for March, according to figures recently compiled, involved 4730 cars, as compared with 5510 in February. This brings the total for the first quarter up to 11,935. Further comparisons follow:

March	4,730
February	5,510
January, 1925	1,695
December	18,475
November	12,720
October	4,885
September	27,630
August	5,980
July	886
1923 total	103,487
1924 total	144,425

Boston, April 7.—Recent frog and switch sales have been heavy. The Bangor & Aroostook placed orders for approximately $18,000 worth of material and the Springfield Street railway for $30,000.

Pittsburgh, April 7.—Spasmodic small orders are noted in light rails. The market price is 1.70c to 1.75c although some makers of billet-rolled rails continue to quote 1.80c to 2.00c, the nominal market. Rerollers are down around 1.60c to 1.75c.

Chicago, April 7.—The largest car placement in weeks to come to the Chicago district is the 2200 box and automobile cars which the Standard Steel Car Co. will build at Hammond, Ind., for the Southern Pacific. This order involves about 22,000 tons of finished steel, exclusive of the trucks. This tonnage is scheduled to go to the leading interest, which booked about 2000 tons in general car work last week.

Competition for tie plates is keen and the quotation of $49, Chicago, is nominal. A sale of tie plates to a St. Louis interest on the basis of $47, Chicago, is reported. Specifications for both rails and track fastenings continue heavy.

American Sheet & Tin Plate Co., two dump cars, to the Clark Car Co.
Hooker Electro Chemical Co., four tank cars, to the American Car & Foundry Co.
Bliss Blatt Co., four gondolas, to the American Car & Foundry Co.
P. J. Campion, four dump cars, to American Car & Foundry Co.
Grasselli Dyestuff Corp., one tank car, to American Car & Foundry Co.
Detroit, Toledo & Ironton, 20 dump cars, to the Clark Car Co.
Richmond, Fredericksburg & Potomac, six passenger cars, to the Bethlehem Shipbuilding Corp.
New York Central, eight baggage cars, to the American Car & Foundry Co.
Laclede Steel Co., one dump car, to the Clark Car Co.
Nashville, Chattanooga & St. Louis, two diners, to the Pullman Car & Mfg. Corp.
Southern Pacific, 3400 cars awarded as follows: 2000 box cars and 200 automobile cars to the Standard Steel Car Co.; 1000 gondola cars to the Tennessee Coal, Iron & Railroad Co.; and 200 tank cars to the Pennsylvania Car Co.
Grand Trunk railroad, 25 caboose underframes, to the Pressed Steel Car Co.
Piedmont & Northern railroad, 50 gondola bodies, to the Carnegie Steel Co.

ORDERS PLACED

New York Central, 500 refrigerator cars, to the Merchants Despatch Co.
Stauffer Chemical Co., one tank car to the American Car & Foundry Co.

ORDERS PENDING

Brooklyn-Manhattan Transit Corp., 60 triplex cars; bids to be asked.
Gary Tube Co., eight dump cars and four flat cars; bids asked.

Wire

Buying Lags Behind But Consumers Using Freely—Prices Hold Firm

SINCE seasonal conditions greatly affect consumption of wire products and nails much depends on the weather and the progress of spring is bringing better demand. Consumption of fencing and barbed wire is expanding while construction work has increased the demand for nails. Specifications are not as full as could be desired and stocks of jobbers lag somewhat. Contracts are being extended by most makers at former prices and the former higher level has disappeared almost entirely.

WIRE PRICES, PAGE 958

Pittsburgh, April 7.—Although consumption of woven wire fencing and barbed wire now is coming into its own, sales by the mills are correspondingly fewer. Other wire products, nails, manufacturing wire, etc., are being specified heavily, and from jobbers mixed carloads represent a heavy aggregate. Straight carloads of nails are fairly numerous. Since contracts are being extended at the old figures on the 2.85c nail base by makers whose 2.75c nail base business is finished, that figure is considered the representative market level. Some who still have 2.75c contracts have had them extended. Gradually the higher levels on the 2.95c nail base, announced earlier in the year, have disappeared.

Boston, April 7.—The expected buying of wire and wire products still holds off in New England. Nails are unusually dull for this season. Prices are unchanged.

Philadelphia, April 7.—While wire nail prices generally are 2.85c base Pittsburgh, some contracts are being extended another month at 2.75c, base.

Chicago, April 7.—Specifications for wire and wire products are none too good and this condition has led to some hope for a turn for the better. Stocks of jobbers are moving slowly. Western quotations on plain wire figure back to 2.70c, Joliet and Waukegan, and on wire nails to 2.95c, Joliet and Waukegan.

Amalgamated Meets

Pittsburgh, April 7.—The fiftieth annual convention of the Amalgamated Association of Iron, Steel and Tin Workers of North America began here today and will continue 10 days or two weeks. The officers are: President, Michael F. Tighe; secretary-treasurer, David J. Davis; assistant secretary-treasurer, Louis Leonard; managing editor "Amalgamated Journal," Ben I. Davis; vice president rolling and finishing division, Herbert F. Reese; vice president sheet and tin division, Robert H. Larner; trustees, John Savage, John A. Price and Bert Caldwell.

The report of Gillette Safety Razor Co., Boston, shows net earnings for 1924 of $10,122,473. This compares with $8,000,000 in 1923 and $7,500,000 in 1922.

Nonferrous Metals

Prices Slip as Buyers Continue to Hold Off—Zinc an Exception in Firmness—Brass Shipments Surpass Previous Records

Prices of the Week

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Tin, N. Y. Straits	Spot New York Lead	Lead St. Louis East	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
April 1	13.62½	13.75	13.25	52.62½	8.37½	8.02½	7.12½	27.00	14.00	31.00
April 2	13.62½	13.75	13.25	51.87½	8.35	8.00	7.05	27.00	14.00	31.00
April 3	13.50	13.75	13.25	51.50	8.35	8.00	7.07½	27.00	14.00	31.00
April 6	13.50	13.62½	13.25	50.87½	8.25	7.95	7.10	27.00	14.00	31.00
April 7	13.55	13.75	13.25	50.87½	8.25	7.90	7.10	27.00	14.00	31.00

NEW YORK, April 7.—The metal markets have been generally dull and easy through another week, continuing the major tendency begun early in January. Developments bearing on the markets have been scarce and not encouraging.

The European political situation has become more involved, with France rather than Germany the present storm center. In Germany, business improved somewhat during March, but in France, the retirement of Clementel, the proposal for a capital levy and the critical position of the Herriot ministry, both along financial and religious lines, have served to unsettle all lines of trade. This is reflected in smaller French demands for metals and liquidation by French dealers in London, also by diversion of Belgian zinc to London which previously had been taken on the Continent.

Domestic consumption of metals has continued active, but consumers maintain their hand-to-mouth policy of buying, having no stimulus to anticipate requirements through fear of higher prices or insufficient supplies.

Copper—Copper again reacted to 13.50c, Connecticut, 13.62½c middle western point, in the absence of active domestic demand. Most producers advanced their quotation ¼ cent to 13.75c, Connecticut, but were unable to make this price hold. Consumers evinced considerable interest during the temporary strength, but when the market eased they withdrew again. Today the market was firm again.

Rolled and drawn products—The base prices of brass and copper products were reduced ¼ cent March 30, the third reduction in 10 days. These declines have been in line with lower electrolytic prices. New business has remained light. John D. Ryan, chairman of Anaconda Copper Mining Co., stated that Anaconda-American Brass shipments the first quarter were the largest in the company's history, with March the banner month for all time. Unfilled tonnage April 1 was only 5 per cent smaller than Jan. 1, despite the record shipments.

Zinc—After a decline of ⅜ cent to 7.00c, E. St. Louis, the slab zinc market has firmed, with business done early this week at 7.10c to 7.12½c. The domestic market continues to follow London closely, due to the need to market surplus output abroad. The foreign situation has been less satisfactory, due to smaller export demand for galvanized sheets in England and larger offers of slab zinc in London from the Continent. Brass special premium has increased to 10 points over prime western.

Lead—World lead production has expanded as a result of the high prices of the past year. With European consumption probably a little smaller, the world lead market has shown a continued easier tendency. The American Smelting & Refining Co. reduced its contract price to 8.25c, New York, after the open market had declined to that figure with St. Louis 7.90c.

Tin—The tin market has broken 51.00c, despite the appearance of the April 1 statistics, showing a decrease of 3968 tons in the world visible supplies. Inasmuch as there is no longer the large invisible supply in the Bandoeng pool to draw upon, the statistical position is stronger than in years. Buying by American consumers has improved and some large dealers here and in London have been buyers. Some forced selling was done in London this week for account of French dealers.

Aluminum—Reflecting the improved activity in the automotive field, demand for aluminum, both new and scrap, is somewhat improved. The domestic producer is meeting the bulk of demands, foreign supplies being as tight as ever. Prices are unchanged at 27.00c for 98 to 99 per cent virgin ingot and 28.00c for 99 per cent.

Scrap—Old metals are dull. Prices recently were marked down with new metal prices but now are firmer without actually going up in most instances. Buying is light.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	18.12½
Copper, hot rolled	21.75
Zinc, ga. 9 to 18 (plate ½c less)	10.25
Lead, full sheets (cut ¼c more)	12.00 to 12.50
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	22.75
Copper	23.75
RODS	
High brass, round, ¾ to 2½-inch	15.87½
Naval brass	18.62½
WIRE	
Copper	15.25 to 16.00
High brass	18.62½

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
New York	8.50
Chicago	8.50 to 8.75
Cleveland	8.75 to 9.00
HEAVY YELLOW BRASS	
New York	6.75
Chicago	7.00 to 7.25
Cleveland	7.00
ZINC	
New York	4.00
Cleveland	4.00 to 4.25
HEAVY COPPER AND WIRE	
New York	11.00
Chicago	10.75
Cleveland	10.75 to 11.00
RED BRASS TURNINGS	
New York	8.00
Chicago	8.00 to 8.25
Cleveland	8.00 to 8.25
YELLOW BRASS TUBING	
Cleveland	7.00
NO. 1 BRASS ROD TURNINGS	
New York	7.75
Chicago	7.75
Cleveland	7.25
LIGHT COPPER	
New York	9.25
Chicago	9.00 to 10.00
Cleveland	9.25
LIGHT BRASS	
Chicago	6.50 to 6.75
Clippings, Chicago	9.00
ALUMINUM	
Borings, Cleveland	12.00
Old sheet, Cleveland	17.00 to 17.25
Clippings, Cleveland	21.00

Secondary Metals

Remelt aluminum No. 12	22.50 to 23.00
Brass ingot 85-5-5-5	11.00

Coke By-Products

Fertilizer Makers Buying Sulphate—Motor Fuel More Active

New York, April 7.—Spot buying by fertilizer manufacturers features sulphate of ammonia. These interests are rounding out their long-term contracts with small lots. Sulphate for domestic shipment is $2.50 to $2.55 works, with material for export quoted nominally at $2.40 to $2.45 port, in double bags.

Increased buying of motor fuel is noted. While this has exerted a stiffening influence on distillates, prices are unchanged. Pure benzol may be quoted at 24 cents works in tanks and 25 cents in drums; 90 per cent, 22 cents works in tanks and 27 cents in drums; toluol, 26 cents in tanks and 31 cents in drums, and solvent naphtha, 25 cents in tanks and 30 cents in drums. Commercial xylol is quoted at 26 cents in tanks and 31 cents in drums. Industrial demand for distillates is being well maintained.

Business in naphthalene is fairly brisk, with prices unchanged at 7½ cents works for balls in carload lots and 6½ cents for flakes. Phenol is featureless at 27 cents local warehouse for spot and 25 cents for futures.

Northwest More Active

Complaint of Lack of Business Accompanied by Generally Satisfactory Turnover

SEATTLE, April 3.—While there is some complaint about lack of business the total turnover is generally satisfactory. The iron and steel business is spotted, activity being noticeable in some quarters while in other lines demand is light.

Seattle building permits reached the record total of $3,477,829 compared with $2,151,800 in the same month, 1924.

Indications point to an active season in Alaska. Canners have made preparations for a heavy pack of fish while mining operators are also expecting increased output. Alaska has absorbed considerable idle labor that until recently was a problem at coast centers.

Pig Iron and Coke

The market is quiet, interest being lackings as buyers in this territory are either well stocked or protected by contracts for their supplies to July 1. There is some hand-to-mouth turnover in small tonnages. Foreign iron appears to be weaker. Columbia iron is quoted at $21 base but it is expected to maintain a competitive price with foreign grades.

There is not much activity in coke. Some foreign shipments are due to arrive soon. Increased quantities of Fernie are reported being sold in this territory.

Bars, Plates and Shapes

Demand for bars is confined principally to reinforcing material which is moving in fair volume due to active building. The local mill price remains stationary at 2.55c and warehouse prices are unchanged. Some foreign material is offerred but the trade shows little interest.

Only one large specification for plates is pending. This involves about 6000 tons for the Vancouver, B. C. water line, about 14 miles of 26, 32 and 36-inch. Bids will be opened April 21 and active competition is anticipated. The Willamette Iron & Steel Works has taken a contract for furnishing about 150 tons of lock bar pipe for the West Barton street job, Seattle. Goetz & Brennan have the general contract. The price of plates is unchanged at 2.50c.

Shapes are unchanged at 2.55c with 2.50c as a possibility for desirable tonnages. Fabricators are anticipating considerable new business as several bridge contracts are to be up for figures soon. For the moment there is little activity.

Receipts of structural steel and steel products at Portland have been heavy during the last month. This material is for the new bridges to cross the Willamette river, the Bedell and other new office buildings. It is estimated that nearly 7000 tons of shapes and iron products were discharged at Portland in March by 12 steamers from Atlantic ports.

Finished Materials

United States Steel Products Co. has been awarded 400 gross tons of 7-inch 82-pound Lorain steel rails at $56.77 gross f.o.b. Georgetown shops, Seattle. This material is for the municipal street railway. The same department is also in the market for approximately the same tonnage in special frog and switch equipment, bids for which are to be opened here April 3.

R. C. Polk, agent for the Gamon Meter Co., has closed with the city of Portland for 22,000 5/8 x 3/4-inch water meters and 4000 3/4 x 3/4-inch meters.

Wholesale warehouse prices remain unchanged here and at Portland. While some jobbers think an advance should be made the majority are satisfied that the situation does not warrant a change in view of lack of active demand and some price cutting, especially in Portland territory.

The demand out of stock is improved wholesalers reporting that March totals show some gain over February. The agricultural sections are buying in greater volume.

Old Materials

The steel scrap market is slightly weaker, prices having declined from $10.50 and $11 gross to $10 and $10.50 gross. Receipts are fairly heavy and consumption is about equal to arrivals. Weakness is attributed to lack of new orders at the local mill. Cast iron scrap is in poor demand and $17.50 is considered a fair average price.

Coast Pig Iron Prices

No. 2 Columbia, San Francisco	$27.50 to 28.50
No. 2 Columbia, Los Angeles	27.50 to 28.50
No. 2 Columbia, Portland	28.00 to 29.00
No. 2 Columbia, Seattle	28.00 to 29.00
Columbia basic delivered	27.25 to 28.00
‡Dutch (2.75 to 3.25)	25.25
*Indian iron	26.00
‡Belgian (2.75 to 3.25)	26.00
*English iron (2.50 to 3.00)	27.00 to 27.50
‡English iron (2.50 to 3.00)	27.50 to 28.00
*English (3.00 to 4.00)	28.00 to 28.50

‡C.I.f. duty paid, coast ports.

Eastern Pig Iron Body Plans New Methods

Philadelphia, April 7.—New methods of functioning are being considered by the Eastern Pig Iron association and a committee appointed at a meeting of that body held April 3 will investigate and report on plans for the future. At this meeting it was decided to discontinue the old plan of procedure. The committee which has the investigation in charge consists of Robert C. Lea of the Robesonia Iron Co., L. W. Francis of the Witherbee-Sherman Co. and Frank W. Jones of the Eastern Steel Co.

One plan suggested is that all brokers be admitted to membership and another that the producers form a separate organization. The competition of the importers of foreign iron created a situation where it was impossible for the association to be conducted on its former basis. The producers represented were anxious for concerted action to increase the difficulty of importing iron but the fact that a good many members of the association were sellers of foreign iron themselves, prevented unanimous support of this course. A number of the producers also objected to reporting figures on production, orders and stocks on hand. A severe blow was dealt the association work in the East several years ago when the Bethlehem Steel Co. withdrew as a member and ceased to make reports. Several months ago the Alan Wood Iron & Steel Co. also withdrew. Recently only five furnace companies were reporting.

The Eastern Pig Iron association was organized about 30 years ago. W. S. Pilling of Pilling & Co. has been secretary since its formation. John J. Howard of E. J. Lavino & Co. became president of the association in January.

Inland Steel Profits Are Best Since War

Earnings of the Inland Steel Co., in 1924, were the best since the war. The net profits totaled $5,474,600 compared with $5,274,958 in 1923.

Due to increased dividend payments, the amount carried to surplus in 1924 was somewhat smaller than in 1923, being $1,817,603 and $2,278,645, respectively. In 1922 there was a surplus of $127,168, while in 1921 a deficit of $503,236 was recorded.

The balance sheet as of Dec. 31, last, reveals a strong current position, current assets totaling $23,929,270, as against current liabilities of $3,837,549, leaving net working capital $20,091,721.

The comparative income account follows:

	1924	1923
Net earnings from operations	*$7,748,590	*$7,399,364
Other income	295,973	274,043
Total profit for year	$8,044,563	$7,673,408
Depreciation and depletion	1,507,296	1,321,269
Interest on bonds	58,667	162,180
Estimated Fed. taxes	716,000	650,000
Employes' fund	288,000	265,000
Net profit for year	$5,474,600	$5,274,958
Preferred dividend	700,000	525,000
Balance for common	$4,774,600	$4,749,958
Common dividends	2,956,998	2,471,313
Surplus for year	$1,817,603	$2,278,645

*Prior to 1923 federal taxes were deducted before showing net earnings.
†Deficit.

	Indicated Earnings	
	1924	1923
Earned on common	$4.03	$4.01

Net profits of $5,805,686 are reported by the Timken Roller Bearing Co., Canton, O., for 1924. This compares with $8,096,803 in 1923.

Buying Less Pig Iron in Britain

American Imports From English Furnaces Show Considerable Drop—United States Competition on Tin Plate Being Met in Far East—French Sheet and Plate Mills Form Combine

By Radiogram

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, April 7.—Americans are buying less pig iron in Britain. Exports from Middlesbrough to the United States dropped from 4055 tons in February to 2645 tons in March. Current business reflects a continuation of the decline.

Prices in the British market are falling. Two blast furnace stacks in the Middlesbrough district have blown out. Pig iron exports from Middlesbrough in March totaled 19,611 tons, compared with 15,326 tons in February. Stocks of pig iron in the Barrow district gradually are increasing.

While British mills are meeting American competition in tin plate in the Far East, the market at home is firmer. Information has been received that the tin plate mills in India, in which British capital is interested, are being enlarged.

French plate and sheet makers have formed a combine. A sale of 15,000 tons of pig iron by French interests to Italy is noted. Brussels reports Societe Anonyme des Acieries d' Angleur, near Liege, has taken an order for 6000 tons of rails for Poland.

British See Some Gain in Steel Situation

European Staff Special

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., March 27.—Slight signs of improvement have appeared and after much consultation Cleveland makers of pig iron have announced a rise in the price of No. 3 foundry iron to £3 18s ($18.64). This is equal to an announcement that actual sales have been below this figure as £3 18s ($18.64) has been the nominal quotation for some time. The principal significance is the obvious determination to arrest the downward movement. The time appears to have been fairly well chosen, as exports show a little improvement, especially of hematite. The Consett Iron Co. this week blew in two furnaces on hematite, making six of the eight owned by this firm active. Cochrane & Co., Cargo Fleet, are blowing out a furnace.

The coke market appears to be weakening, good Durham coke being obtainable at £1 2s ($5.25) delivered at the works. The Midlands have shared in the downward movement, 15s 9d ($3.76) now being the accepted basis at the ovens, a fall of 1s ($0.23) on the figure standardized some time ago. There are now 43 furnaces at work in Middlesbrough, of which 16 are making ordinary Cleveland quality, 12 hematite and 14 basic and other special irons.

Steel orders continue far below requirements, especially under the head of shipbuilding and railway work. The general sentiment is slightly more hopeful, one event giving encouragement being the placing by Australia of a contract for two cruisers with the firm of John Brown & Co. The agreed price is understood to be £4,000,000 for the two vessels. Several shipbuilding orders have been placed also in Glasgow which will call for a fair quantity of plates. The shipbuilding orders will involve some work for Sheffield under the head of forgings and machinery, and that center

Sterling $4.78

generally is rather busier, having also a few armor plate orders and some tanks for military requirements.

In structural shapes inquiries are steadily maintained and this class of order is enabling mills to make about half time. The general rule with the operating mills is to start Wednesday morning and finish Friday night. Several leading engineers are better off for tonnages than for a long time, one or two having about a year's work in hand. A number of bridge contracts have been arranged, chiefly for railways and an Indian state railway is inquiring for a bridge which will absorb about 2,500 tons of steel.

Steel prices are steady, billets remaining at £7 ($33.46) per ton and joists, sections, etc. at £8 15s ($41.82). Engineers claim to be able to buy at £8 12s 6d ($41.22). Continental competition is still severe. The latest reports from France and Belgium are that most of the works are filled up for some time. and recent bookings have been for May delivery and onward, nothing now being accepted for April. One of the cheapest Belgian lines is steel bars at £5 15s ($27.48) f.o.b. Antwerp. Steel angles can be bought from Belgium at £5 15s ($27.48) f.o.b. and joists at £5 9s 6d ($26.17). The steelmakers agree that competition on these lines is impossible, and opinion in the trade seems to be increasingly in the direction of the need for some form of government assistance.

Staffordshire iron business shows no change. Best marked bars are almost the only product called for in any quantity, medium iron being almost stagnant. Some of the Staffordshire trades are calling for more material such as the chain, rivet and nut and bolt industries but the large orders are chiefly for foreign iron, No. 3 Belgian material being obtainable at £7 10s ($35.85) delivered. This is £4 ($19.12) below the Staffordshire price.

Steel scrap is difficult to sell. The usual price is £3 12s 6d ($17.32) delivered in Sheffield and £3 17s 6d ($18.52) South Wales. The latter district, ordinarily a good buyer, is taking hardly any scrap and in many cases, suspensions of deliveries on old contracts have become the regular practice.

Galvanized sheets are decidedly firmer, the new price ranging from £16 5s ($77.67) to £16 10s ($78.87). The tendency is increasingly towards the latter figure. Recent bookings have placed the works concerned in a favorable position, activity being assured throughout the summer. The outlook for the tin plate trade has brightened during the last week, orders having come in steadily for good tonnages practically on behalf of all markets. A number of the makers have found themselves able to exceed the basis of £1 2s 1½d ($5.27) by a few pence. The restriction of output is still continued, but if orders come in on the present scale these limitations are likely to be withdrawn. Orders are coming from South Africa, the Continent and the Far East, though Indian buying is decidedly below the normal 7s 6d ($1.79) rebate. The expansion in tin plate is usual at this time of the year, and it is hoped the worst has passed.

British Export Prices Little Changed

London, March 27.—The board of trade returns for February, 1925, give the average export prices per gross ton for a certain number of iron and steel products. These prices are compiled from actual contracts made sev-

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, April 6	British Gross Tons U. K. Ports		French Metric Tons Channel Ports		Belgian and Luxemburg Metric Tons Channel Ports		German Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d		Francs		Francs		£ s d	
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$18.68	3 18 0*	$18.32	355	$18.22	360	$19.88	4 3 0
Basic	19.16	4 0 0	19.35	375	17.96	355	23.35	4 17 6
Basic-bessemer	20.96	4 7 6†	17.54	340	17.20	340	19.88	4 3 0
Hematite, Phosphorus 0.02-0.05	19.88	4 3 0	24.51	475	.....	...	23.95	5 0 0
SEMIFINISHED STEEL								
Billets	$31.14	6 10 0	$25.28	490	$25.30	500	$24.43	5 2 0
Wire rods	50.30	10 10 0	33.28	645	32.13	635	33.05	6 18 0
FINISHED STEEL								
Standard rails	$40.72	8 10 0	$26.32	510	$26.57	525	$28.74	6 0 0
Merchant bars	1.76c	8 5 0	1.24c	530	1.24c	540	1.25c	5 15 0
Structural shapes	1.71c	8 0 0	1.17c	500	1.18c	515	1.19c	5 10 0
Plates, ship, bridge and tank	1.82c	8 10 0	1.57c	670	1.51c	660	1.51c	6 19 0
Sheets, black, 24 gage	2.51c	11 15 0	2.81c	1,200	2.61c	1,140	2.71c	12 10 0
Sheets, galvanized, 24 gage, corrugated	3.53c	16 10 0	4.07c	1,740	5.10c	2,225	3.69c	17 0 0
Bands and strips	2.35c	11 0 0	1.59c	680	1.72c	750	2.06c	9 10 0
Plain wire, base	2.35c	11 0 0	2.25c	960	1.95c	850	2.01c	9 5 0
Galvanized wire, base	2.99c	14 0 0	2.76c	1,180	2.52c	1,100	2.39c	11 0 0
Wire nails, base	3.10c	14 10 0	2.29c	980	2.06c	900	3.04c	14 0 0
Tin plate, base box 108 pounds	$ 5.27	1 2 1	.....	...	.....	...	$ 6.71	1 8 0
Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$18.68	3 18 0	$17.80	345(2)	$17.96	355	$20.70	90
Basic pig iron	19.16	4 0 0	17.80	345(1)	17.20	340	22.43	97.50
Furnace coke	3.77	0 15 9	7.33	142	7.08	140	5.52	24
Billets	31.14	6 10 0	22.72	450	25.30	500	27.60	120
Standard rails	1.82c	8 10 0	1.19c	510	1.37c	600	1.48c	142
Merchant bars	1.82c	8 10 0	1.28c	545	1.29c	565	1.34c	128
Shapes	1.76c	8 5 0	1.17c	500	1.26c	550	1.30c	125
Plates, ship, bridge and tank	1.98c	9 5 0	1.56c	665	1.56c	680	1.46c	140
Sheets, black, 24 gage	2.67c	12 10 0	2.87c	1,225	2.63c	1,150	2.92c	280
Sheets, galvanized 24 gage, corrugated	3.36c	16 5 0	4.06c	1,735	5.15c	2,250	5.22c	500
Plain wire	2.35c	11 0 0	2.41c	1,030	1.95c	850	1.93c	185
Bands and Strips	2.46c	11 10 0	1.59c	680	1.72c	750	1.67c	160

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 16s 9d ($3.77) f. o. b. Ferromanganese, £15 10s 0d (74.25) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

eral months ago and this accounts for the difference between the present quotations and the base prices regularly quoted in our columns.

The price of foundry pig iron was about the same as in January but about 10s ($2.39) less than in February, 1924. The price of ferromanganese was slightly over the price quoted in January and about 10s ($2.39) over the price prevailing a year ago. Carbon billet prices for February, 1925, were about the same as for February, 1924, but 14s ($3.35) over the price quoted in January, 1925. The price of beams was 8s ($1.92) over January prices and 2s 6d ($0.60) less than in February, 1924. Plates were 3s 6d ($0.84) over the January price and 6s ($1.44) less than in February, 1924; galvanized sheets were 18s ($4.32) less than in January and £1 2s ($5.28) less than in February, 1924; tin plate was 7s less than in January ($1.68) and 9s ($2.15) less than a year ago.

	£	s	d	$
Foundry pig iron	4	18	9	23.60
Ferromanganese	15	9	4	74.00
Carbon billets	15	3	1	72.25
Beams	10	17	0	51.80
Galvanized sheets	19	10	0	93.00
Tin plate	24	9	4	117.00
Plates	11	12	0	55.35

French Steel Prices Are Steadier

European Staff Special

PARIS, March 27.—Since the organization of the Office des Statistiques des Produits Metallurgiques, which is the title French iron and steel producers have given the new price fixing syndicate, prices show a marked degree of steadiness. This bureau will fix the minimum prices at which its participants will be allowed to take orders and its scope eventually may be extended to include all lines of current iron and steel products. At present activities are confined to pig iron and several finished steel products such as shapes, bars and hoops. According to rumors plates and sheets soon will be added. Now that manufacturers have outlined a definite price policy, jobbers are holding a meeting in view of establishing uniform store prices. Thionville, in the recovered district of Lorraine, has been decided upon as the basing point for the mills. The base prices f.o.b. Thionville are as follows: Shapes 500 francs per metric ton ($26.25); merchant bars 530 francs ($27.82); hoops 780 francs ($40.95). According to the project which jobbers now are studying, prices will be determined in much the same way as in the United States.

Pig iron is firm. Price advances are being anticipated. It is reported that No. 3 (2.50 to 3.00 silicon) chill-cast foundry pig iron will be moved up from its present price of 335 francs ($17.58) to 345 francs ($18.11) per metric ton on April 1. Silicon differentials remain unchanged as follows: Silicon 3.00 to 4.00 per cent plus 10 francs ($0.525); silicon 4.00 to 5.00 per cent plus 20 francs ($1.05); silicon 1.70 to 2.50 per cent minus 5 francs ($0.26); silicon 1.50 to 2.00 per cent minus 10 francs ($0.525); silicon 1.00 to 1.50 per cent minus 15 francs ($0.79).

Export business continues satisfactory. Hematite pig iron has not been taken into the selling syndicate, but producers are considering the question seriously. Hematite prices vary at different centers but 425 francs ($22.31) per metric ton may be taken as an average price.

The semifinished market is steady. Export and domestic business is coming in satisfactorily. Blooms are still quoted at 420 ($22.05) and billets bring 440 francs ($23.10) f.o.b. Thionville.

Finished steel buying is quiet. Buyers hurried to get in their specifications just before the organization of the selling syndicate in anticipation of higher prices. As a result the mills are booked ahead for six to eight weeks. Heavy plates are dull and prices weak. Some tonnage has been placed at 660 francs, ($34.65).

Machinery

Sales Pick Up After Dull Week—Railroad Business Still Not Up to Expectations—Crane Sales Are Few

BUSINESS during the first week in April was far from brisk but demand now seems somewhat improved. Railroad buying has not reached the point indicated by last week's activity. Due to the lack of general industrial inquiry, competition for the railroad business is becoming more keen. Of interest to tool builders is the announcement of the General Electric Co., Schenectady, N. Y., that prices on standard types of polyphase induction motors from 1 to 15 horsepower have been reduced an average of 10 per cent and sizes of 15 to 100 horsepower an average of 4 per cent. The new prices became effective April 6. Used machinery sales are holding up better than the new, this business being aided by the offerings of equipment in several eastern plants. Crane buying is slack and few orders are pending.

Chicago, April 7.—Considering large railroad inquiries, machine tool dealers have a big volume of pending business, but it is difficult to close. Dearth of general industrial inquiry is making competition for railroad business more keen. This month may see the Illinois Central buying the 60 tools for its new Markham yards, Chicago. Since this is a new project, it is presumed the entire list will be purchased practically simultaneously. Union Pacific railroad is inquiring for three sensitive bench drill presses, motor driven, for its shops at Huntington, Oreg. Automatic Electric Co., Chicago, has placed a motor driven automatic disk grinder.

Boston, April 7.—March proved a dull month with sales dropping 25 per cent below February. While somewhat better inquiry is now before the trade, sales of the past week were few. A Springfield, Mass., manufacturer bought several tools including a lathe and sensitive drill. Another Massachusetts manufacturer bought a power hammer. A Rhode Island textile mill ordered a grinder and is in the market for another. Boston dealers report scattered individual sales, with the total for the week probably less than a dozen. Used tool sales also have been quiet. Inquiry is more diversified.

New York, April 7.—Still far from brisk, demand is slightly improved. Several orders long pending, some for 6 to 8 months, have been placed. Buying of new machinery, however, still is affected by offerings of used equipment. There has been some goodly buying of equipment installed at the plants of the Emerson Engineering Co. and Nelson Valve Co., both at Philadelphia, while machinery at the McNab & Harlan plant at Paterson, N. J., has been purchased in some instances in preference to new machinery. Railroad buying has not yet developed to the extent indicated last week. Action, however, is reported to have been taken by the Central of Georgia, although no details are available. The Chesapeake & Ohio has added a 90-inch driving lathe to its pending list, while the Chicago, Rock Island & Pacific closed on two 90-inch locomotive wheel quartering machines to an eastern builder. Industrial buying included a special two-spindle radial drill for the Ford Motor Co., Detroit, and a 1500-pound steam hammer for both the International Petroleum Co., for installation at Toronto and the Oil Well Supply Co., Pittsburgh. Industrial Works, Bay City, Mich., have placed a 30-inch x 12-foot engine lathe. The General Electric Co., has issued inquiries for an engine lathe, shaper and radial drill for its Schenectady, N. Y. plant and a vertical grinder for its Bridgeport, Conn. works. Crane buying continues to lag.

Pittsburgh, April 7.—Orders have been fairly plentiful notwithstanding the widespread feeling that buying is not what it should be. Westinghouse Airbrake Co., Wilmerding, Pa., bought 12 emery grinders and five tumbling mills. Westinghouse Electric & Mfg. Co. bought a number of hoists but has put off buying equipment for its new brass foundry at East Pittsburgh.

Crane Orders Placed

Twelve electric hoists for Baltimore & Ohio railroad, to Shepard Electric Crane & Hoist Co.

Six 1-ton hoists for Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to an eastern builder.

Three 25-ton locomotive cranes for Baltimore & Ohio railroad to McMyler-Interstate Co.

Three cranes for Illinois Central railroad, including bucket crane, 15-ton electric traveling crane and 5-ton handpower crane, to Whiting Corp.

Two electric cranes of 5 and 2 tons capacity for Vermont Marble Co., Proctor, Vt., reported as going to Harnischfeger Corp.

Several cranes for Chile Exploration Co., New York, to Industrial Works; specifications call for a 150-ton wrecking crane, a 30-ton and a 25-ton standard locomotive crane, a 10-ton crawler and one other machine understood to be a pile driver.

Single crane orders included: 100-ton electric overhead crane for Phoenix Utility Co., New York, for Trinidad, Tex., to Whiting Corp.; the 100-ton crane for Salt Lake City to be purchased locally, 10 ton gantry crane to Melrose yards, New York Central railroad, to eastern builder; 10-ton crane for West Penn Railways Co., subsidiary of West Penn Power Co., Pittsburgh, to Northern Engineering Works; 5-ton crane for Plastergon Wall Board Co., Buffalo, to Northern Engineering Works; 3-ton crane for Penn Iron & Steel Co., Creighton, Pa., to Northern Engineering Works; 30-ton crane for Northern States Power Co., La Crosse, Wis., to Whiting Corp.; 6-ton trolley for West Penn Power Co., for West Virginia point, to Roeper Crane & Hoist Works.

Crane Orders Pending

Crane orders pending include 50 or more cranes for Carnegie Steel Co., Homestead, Duquesne and Mingo Junction, tabulations being made; 15-ton crane for Koppers Co., for Jones & Laughlin coke ovens, Woodlawn, Pa., tabulation of bids to be completed in short time.

Cincinnati, April 7.—Impetus has been given machine tools by receipt of additional inquiries from the railroads, some involving more than single units. A Chicago manufacturer has bought approximately $40,000 worth of tools in this market, including planers, boring mills, lathes and radial drills. Small tool builders are enjoying a slightly better business than the manufacturers of heavier types. Reports indicate that the turning point in machine tool business is near. Conditions seem more encouraging than a month ago. The used machinery market is quiet with few sales of consequence.

Cleveland, April 7.—Buying of machine tools has shown a slight lull during the first week of the month but signs of improvement are noted. Inquiries continue to be received in fair volume. Dealers are optimistic over the closing of several which are pending. The General Electric Co., Schenectady, N. Y., has ordered its list of about 15 miscellaneous small tools for a service station in Cleveland, the business being split up among several local sellers. Used tool business is well sustained.

General Electric Co., which is issuing its monthly second-hand equipment list from eight plants for sale and involving about 1200 items, is about to purchase three new bolt cutters for Erie, Pa. National Tube Co. is starting to buy against its list of about 12 items for McKeesport, closing on two lathes and one or two other items. A new local steel fabricating shop has bought a small list of equipment, including a combination punch and shear, a drill press, metal saw, etc. Another buyer took a single end punch and shear, and a milling machine. Sprague Electric Co., New Kensington, Pa., bought a straightening machine. Wheeling Art Metal & Mfg. Co., East Wheeling, W. Va., is replacing equipment damaged in a recent fire. Crane inquiries are few but several old propositions still are before sellers. Several single installations have been awarded.

The ninth annual exhibition of American industrial art has been opened at the Metropolitan Museum of Art, New York, and will continue for six weeks, closing May 3. More than 130 American manufacturers and designers are represented. The exhibition includes displays in metal work, hardware, ceramics, glassware, textiles, furniture, etc.

Complains Wire Merger Violates Law

Washington, April 7.—Charging that the acquisition of the capital stock and property of the American Wire Fabrics Corp. by the Wickwire-Spencer Steel Corp., of New York, manufacturer of screen wire cloth, was in violation of the Clayton act, the federal trade commission has issued a complaint against the Wickwire-Spencer company, it is announced by the commission.

Under the procedure of the commission, the question of law violation is not to be passed upon finally until after the Wickwire-Spencer company has had 30 days in which to answer and the issue has been tried. This citation was issued before the trade commission announced its modified form of procedure recently, under which cases are to be reviewed before complaints are issued against them.

The complaint alleges that the acquisition by the Wickwire-Spencer company tends to eliminate competition and to restrain commerce in the distribution of screen wire cloth.

To Mine Manganese Ore

Manganese ore deposits in the Olympic mountains, 12 miles from Brinnon, on Hood's canal, Washington, will be developed by the American Manganese Corp., Seattle. The company owns 800 acres, about half of which is believed to contain seven veins of high-grade ore, the veins ranging from 10 to 200 feet wide and some being traceable for a depth of over 1000 feet. The company is capitalized at $50,000. Officers are: T. J. Dowling, president; F. A. Karnes, vice president; H. I. Soles, secretary and treasurer.

Ordnance Makers Meet

More than 100 manufacturers in the New York district met at the Harvard club in New York, April 3, with the Ordnance Advisory board, of which Judge E. H. Gary is chairman, to receive tentative orders for production of artillery, rifles, machine guns and ammunition as part of the industrial mobilization in case of another war. Under this system, manufacturing plants accepting orders for war material are designated as "Ordnance Reserve Plants" and have a status similar to that of "Ordnance Reserve Officers" as now provided by law.

During the last war there were great delays in adapting plants to war-time purposes. To guard against such delays again, Assistant Secretary of War Dwight Davis is furnishing to each plant plans and quantities of war materials that would be demanded from it. Those plants involved are in a position to begin work on war supplies at any time on receipt of orders from Washington to start such manufacturing.

Manufacturing and Farm Groups To Confer

Agricultural leaders from the New England states, New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois and Wisconsin will gather at Cleveland, April 21, to meet the leaders of a number of important manufacturers' organizations in the same states in a conference, the keynote of which is a "Better Understanding Between Industry and Agriculture."

In addition to the National Grange and various state granges, the American Farm Bureau federation, and several state farm bureaus, at least two of the largest dairy organizations also will be represented. The National Metal Trades association, the National Founders association, and the National Association of Manufacturers make up the organized manufacturing groups to take part. The metal trades association will hold its convention in Cleveland, April 22.

Special attention will be given at the conference to results already achieved by farmer-manufacturer groups which have been organized in Maine, Wisconsin and Kentucky. The general conference is to be divided into a series of state conferences to discuss the local problems which might lead to similar group organizations in various other states.

Lake Ore Not Competiitve in Eastern Market

New York, April 7.—The new price on lake iron ore is equivalent to 12 1/6 cents per unit, delivered eastern Pennsylvania furnaces, which is about 1 cent lower than the previous lake price delivered. The lake price is no market factor in the East, competition at eastern furnaces being between eastern domestic and foreign ore producers. Eastern foundry and basic ore sold in March at 9½ cents a unit, delivered eastern furnaces. Some tonnage now is under negotiation, and it is unlikely 9½ cents will be cut, because foreign prices seem fairly firm. Mediterranean hematites range from 8 to 9½ cents a unit, f.o.b. cars, tidewater, depending on the grade, while the fines could be had around 7 cents. Foreign magnetites range from 9 to 9½ cents and foreign low phosphorus ores are 10 to 10½ cents f.o.b. cars tidewater. So far there has been no contracting for the year in the East.

Indiana Foundry Co., Muncie, Ind., has reduced its directors from five to three and its capitalization from $100,000 to $50,000.

Coast Scrap Combine Charge Fails

Washington, April 7.—Complaint issued about a year ago against six manufacturers of iron and steel products on the Pacific coast in which the federal trade commission made charges of attempted control of the iron and steel scrap market of the coast territory, has been dismissed by the trade commission, it was announced yesterday. The companies were charged with combining to suppress competition in the purchase of scrap used in their industry through the organization of a supply company by which purchases of raw materials were said to have been made. The commission was unable to sustain the charges in the complaint, however.

Those named in the commission's order of dismissal are: Pacific Coast Steel Co., San Francisco, Portland and Seattle; Columbia Steel Corp., Pittsburg, Calif., and Portland, Oreg.; Llewellyn Iron Works, Los Angeles; Judson Mfg. Co., San Francisco; Southern California Iron & Steel Co., Los Angeles; and the supply company, the Steel Mill & Foundry Supply Co.

Iron and Steel by Radio

Casting its educational lectures into the ether on the carrier wave of station KDKA of the Westinghouse Electric & Mfg. Co., the University of Pittsburgh has presented to all listeners a series of seven lectures on important industries of this country the past winter. This is a step in the fulfillment of the duty of a university to make education available to the largest possible number. The lecture on iron and steel was delivered by Stephen L. Goodale, professor of metallurgy, school of mines, of the university. He sketched briefly in his talk the high lights of the development of the iron and steel industry and the various discoveries that marked epochs and made possible the present size and importance of this branch of production.

The series of lectures has been reproduced in a pamphlet for further distribution from the university press at Pittsburgh.

United Alloy Earns Less

Net profits of the United Alloy Steel Corp., Canton, O., were $713,000 in 1924 compared with $3,072,000 in 1923. The comparative income as shown in the annual statement, follows:

	1924	1923
Profit	$3,084,316	$5,893,108
Int., depr., etc.	2,270,064	2,470,743
Federal tax	100,413	350,000
Net profit	713,839	3,072,365
Preferred dividends	231,000	231,000
Common dividends	400,000	2,200,000
Surplus	82,839	641,365

March Pig Iron Shows Increase

Production Makes 419-Ton Daily Gain Although Operating Blast Furnaces Drop from 256 to 246 During Month — Final Figures Verify Preliminary Estimate Published Last Week

PRODUCTION of coke pig iron during March registered further gain, according to complete reports from all blast furnaces. While the increase was not as large as indicated in the estimated report published in the April 2 issue of IRON TRADE REVIEW, it was of significance. During the month operating furnaces declined from 256 to 246 and indicated that unquestionably the peak of production has been reached for the present. Other furnaces are considering blowing out. On the last day of March, 60 per cent of the country's blast furnaces were operating while one month previous the figure was 62.3 per cent.

MONTHLY PRODUCTION

	1925	1924	1923
January	3,372,207	3,015,480	3,228,226
February	3,214,067	3,073,619	2,993,918
March	3,571,422	3,465,389	3,523,595
April		3,226,107	3,546,308
May		2,619,986	3,868,486
June		2,022,836	3,667,868
Total 1st half.	10,157,696	17,423,417	20,828,401
July		1,783,457	3,684,677
August		1,882,986	3,448,886
September		2,053,617	3,117,526
October		2,461,727	3,142,642
November		2,514,979	2,891,191
December		2,956,389	2,912,527
Total 2nd half		13,653,155	19,197,449
Grand total..	10,157,696	31,076,572	40,025,850

Pig iron made in March totaling 3,571,422 gross tons was the largest since July 1923. As compared with the 3,214,067 tons made in February, this was an increase of 357,355 tons. March, however, had 31 days, as compared with 28 in February. The March output was at the rate of 115,207 tons per day, a rate which was 419 tons higher than the 114,788-ton per day rate of February or an increase of 0.36 per cent. During March pig iron was made at the rate of 42,200,000 tons per year, as against a rate of 41,800,000 during the month before.

Merchant pig iron made in March totaled 736,284 tons compared with the 661,415 tons of February an increase of 74,869 tons. Reduced to an average daily basis, this represented 23,751 tons, as against 23,622, tons per day in February, a gain of 129 tons. Nonmerchant or steelworks production amounted to 2,835,138 tons, or an increase of 282,486 tons over the 2,552,652 tons of the previous month. The nonmerchant output averaged 91,456 tons per day, or a gain of 290 tons over the 91,166 tons average of the month before.

On the last day of March active blast furnaces totaled 246, this being a loss of 10 from the 256 active on Feb. 28. During the month 2 merchant stacks were blown out and none blown in. Of the nonmerchant class 2 were blown in and 10 were blown out, the net loss for this class being 8. Of the total number of furnaces operating on the last day of the month 61 were merchant and 185 were nonmerchant. The corresponding figures for February were 63 and 193. On March 31 the Steel corporation had 95 furnaces in blast, this total comparing with 101 on Feb. 28 and 100 on Jan. 31.

AVERAGE DAILY PRODUCTION

	1925	1924	1923	1922	1921
Jan.	108,781	97,273	104,136	53,090	77,895
Feb.	114,788	105,987	106,925	58,220	69,906
Mar.	115,207	111,787	113,664	65,674	51,447
April	.....	107,537	118,210	69,005	39,691
May	.....	84,515	124,790	74,495	39,202
June	.....	67,427	122,262	78,748	35,466
July	.....	57,531	118,860	77,517	27,892
Aug.	.....	60,741	111,254	58,408	30,802
Sept.	.....	68,454	103,917	67,466	32,859
Oct.	.....	79,410	101,375	84,827	39,821
Nov.	.....	83,832	96,373	94,870	47,165
Dec.	.....	95,367	93,952	99,468	52,992
Ave.	112,863	84,908	108,659	73,563	45,223

Spiegeleisen made in March amounted to 5449 tons showing an increase of 539 tons over the 4910 tons of February. Ferromanganese with 11,004 tons was a gain of 1527 tons over the 9477-ton output of the preceding month.

Stacks blown in during the month were: In Ohio: River No. 3, McKinney Steel Co. In Indiana: Indiana Harbor No. 2, the new blast furnace of the Youngstown Sheet & Tube Co.

Furnaces blown out during the month were: In Ohio: Haselton No. 3, Republic Iron & Steel Co.; Belfont, Belfont Steel & Wire Co.; one Central American Steel & Wire Co.; one Mingo, Carnegie Steel Co.; Tod, Youngstown Sheet & Tube Co. In Pennsylvania: Swede No. 2, Alan Wood Iron & Steel Co.; one Carrie and one Lucy, Carnegie Steel Co. In New York: Susquehanna Nos. 3 and 4, Rogers, Brown Iron Co. In Alabama: Bessemer No. 2, Tennessee Coal, Iron & Railroad Co. In Illinois: Joliet No. 1, Illinois Steel Co.

The Bethlehem Steel Co. has abandoned and is dismantling its Cambria A furnace at Johnstown, Pa., and its Steelton No. 2 furnace at Steelton, Pa. The plant at Johnstown now consists of 9 furnaces and the one at Steelton 5 furnaces.

DIVISIONS OF PRODUCTION

1924	Merchant	Non-merchant	Spiegel	Ferromanganese	Other ferro
Jan.	707,710	2,307,770	7,948	19,735	.....
Feb.	679,700	2,393,919	9,870	22,262	.....
Mar.	712,321	2,753,068	13,794	22,350	.....
Apr.	708,151	2,517,956	4,240	23,580	163
May	648,656	1,971,330	9,336	21,663	763
June	551,408	1,471,428	9,410	20,563	779
July	468,780	1,314,677	15,328	11,927	765
Aug.	465,059	1,417,927	8,010	7,654	760
Sept.	518,017	1,535,600	5,033	7,255	593
Oct.	607,717	1,854,010	10,047	6,545	822
Nov.	605,438	1,909,541	8,835	13,429	870
Dec.	634,726	2,321,663	5,284	21,220	904
Total	7,307,683	23,768,889	107,135	198,183	6,419
1925					
Jan.	659,256	2,712,951	5,418	23,564	956
Feb.	661,415	2,552,652	4,910	9,477	848
March	736,284	2,835,138	5,449	11,004	877

Net profits of the American Brake Shoe & Foundry Co., New York, and its subsidiaries, amounted in 1924 to $2,454,904, according to the annual report just issued. Profits for 1923 totaled $2,727,097.

MARCH PIG IRON

	No. of stacks	No in blast last day of month Mar.	Feb.	Total tonnage made Merchant	Nonmerchant	—Totals— Mar.	Feb.
Pennsylvania	142	92	95	180,118	1,126,265	1,306,383	1,170,136
Ohio	78	49	53	131,476	666,588	798,064	748,650
Alabama	42	25	26	132,584	121,580	254,164	222,189
Virginia	19	3	3	10,616	.....	10,616	9,359
New York	27	15	17	90,426	126,684	217,110	205,012
New Jersey	4	0	0	.....	.....	.....	.....
Illinois	26	22	23	112,156	288,958	401,114	362,192
Colorado	5	2	2				
Indiana	17	17	16	17,814	393,092	410,906	349,280
Maryland	6	6	6				
Wisconsin	6	1	1				
Kentucky	7	2	2				
Tennessee	14	2	2	16,235	62,483	78,718	61,731
Utah	1	1	1				
West Virginia	5	3	3				
Georgia	2	0	0				
Michigan	4	4	4				
Minnesota	3	2	2	33,639	43,378	77,017	70,283
Missouri	1	0	0				
Texas	1	0	0				
Spiegel and ferro—all states	..	..	..	11,220	6,110	17,330	15,235
Total	410	246	256	736,284	2,835,138	3,571,422	3,214,067

Current Statistics of Industry

Malleable Castings Drop

Washington, April 7.—Production and bookings of malleable castings dropped in February from January totals, according to reports to the department of commerce from 143 producing plants. Operations fell from 57.6 to 53.0 per cent, while capacity operated dropped from 115,179 to 113,530 tons. Following is a comparison of production, bookings and capacity operated, from July through February.

	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
1924				
July	31,159**	28.4	30,200	109,855
August	36,727**	32.6	34,627	112,496
September	41,507**	36.9	48,729	112,349
October	50,066***	43.8	54,589	114,264
November	47,987**	42.5	48,866	113,011
December	58,773****50.9		46,541	115,474
1925				
January	66,367****57.6		61,140	115,179
February	60,220**	53.0	49,673	113,530

**Includes 4 plants reported idle.
***Includes 5 plants reported idle.
****Includes 6 plants reported idle.

Plate Bookings Lower

Washington, April 7.—Bookings of fabricated steel plates totaled 20,795 tons in February as compared with 26,859 tons in January, according to reports just compiled by the department of commerce based on returns from 34 companies. All classes of fabrication excepting tank cars showed a drop in February. Blast furnace requirements fell from 4495 tons in January to 289 tons in February. Following is a comparison by months:

	Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1923—					
Total	538,156	296,128	43,876	9,730	141,258
1924—					
Total	312,716	122,360	43,747	12,426	108,836
Jan.	20,182	4,001	7,934	891	6,517
Feb.	15,787	2,332	4,700	574	7,074
Mar.	21,346	4,659	3,917	469	10,188
Apr.	19,446	6,244	1,630	855	9,254
May	25,233	4,951	6,448	710	11,280
June	29,127	15,757	2,606	1,009	8,765
July	21,798	11,311	657	894	7,944
Aug.	32,455	15,827	1,996	869	12,310
Sept.	19,881	10,248	1,100	902	6,682
Oct.	23,749	7,758	1,660	2,252	10,087
Nov.	34,153	12,787	1,876	304	9,647
Dec.	49,559	26,445	9,223	2,697	9,088
1925					
Jan.	26,859	4,314	6,529	4,495	9,071
*Feb.	20,795	3,321	4,059	289	7,763

*Data for one company estimated.

Steel Castings Lower

Washington, April 7.—Revised figures just issued by the department of commerce on production of steel castings in February show a further drop. Total bookings were 61,535 tons, or 61.3 per cent of capacity, as compared with 73,964 tons and 73.7 per cent first reported. Following are comparisons by months.

	Total net ton	Per cent capacity	Railway specialties net tons	Miscellaneous net tons
1922 totals	812,741	69.6	404,682	408,059
1923 totals	894,780	74.6	386,939	507,841
1923 mo. av.	74,565	74.05	32,245	42,320
1924 totals	772,840	64.1	388,357	384,483
1924 mo. av.	64,403	64.1	32,363	32,040
1924				
January	51,406	51.2	19,572	31,834
February	73,138	72.8	35,474	37,664
March	100,514	100.1	59,778	40,736
April	68,119	67.8	33,151	34,968
May	56,801	56.6	28,064	28,737
June	48,718	48.5	26,170	22,548
July	38,191	38.0	16,244	21,947
August	36,363	36.2	14,532	21,831
September	62,509	62.3	29,567	32,942
October	66,697	66.4	31,130	35,567
November	74,220	73.9	41,343	32,877
December	96,164	95.8	53,332	42,832
1925				
January	82,922	82.6	40,799	42,123
February	61,535	61.3	27,237	34,298

Enameled Ware Orders Up

Washington, April 7.—Unfilled orders for enameled ware were larger on Feb. 28 than on Jan. 31, according to reports to the department of commerce from 21 manufacturers. Orders received in February dropped below January for baths, lavatories, sinks and miscellaneous. Following is a comparison of baths and small ware:

	Baths			Small ware
1924	Orders shipped	Orders received	Unfilled orders	Unfilled orders
Jan.	95,562	114,203	216,295	735,131
Feb.	98,568	147,511	235,279	790,983
Mar.	116,717	130,375	245,921	822,176
Apr.	102,984	97,606	239,118	728,122
May	101,146	74,494	214,309	579,854
June	84,665	72,978	181,907	458,182
July	97,376	93,163	169,394	395,697
Aug.	103,232	90,955	154,658	339,022
Sept.	104,622	88,913	131,904	286,783
Oct.	93,878	77,361	79,444	206,332
Nov.	75,075	77,068	64,876	174,127
Dec.	73,724	109,263	89,402	254,625
Total	1,147,549	1,173,890	.....	.....
1925				
Jan.*	93,938	120,358	108,572	295,400
Feb.	93,380	99,986	115,236	299,254

*Revised

1924 Rail Production Drops from 1923

Production of steel rails in the United States during 1924 totaled 2,433,332 gross tons, according to statistics compiled by the American Iron and Steel institute. As compared with the 2,904,516-ton output of 1923, this was a loss of 471,184 tons, or 16.22 per cent. In the accompanying table is shown the production of rails by processes from 1910 to 1924.

On a percentage basis, open-hearth rails represented 94.83 per cent; bessemer, 0.66 per cent; and all other, 4.51 per cent. Corresponding figures for 1923 were 94.29, 0.89 and 4.82 per cent, respectively. It will be noted that open hearth made a slight increase while bessemer and all other dropped a little. with 1923, open-hearth production dropped 15.75 per cent; bessemer, 37.9 per cent and all other, 21.54 per cent. The total production includes in addition to new rails rolled, rails rerolled from defective rails and old rails. In 1924, the total rerolled amounted to 121,508 tons as against 156,943 tons in 1923.

In 1924, 23 mills were engaged in rolling or rerolling rails. Of this number 16 used the open-hearth process, three the bessemer and none the electric. Seven mills produced renewed or rerolled old rails. According to weight per yard, 191,046 tons was under 50 pounds, 213,274 tons was between 50 and 85 pounds, 853,431 tons was between 85 and 100 pounds and 1,175,581 tons was over 100 pounds. Alloy treated rails in 1924 totaled 5167 tons against 2142 the preceding year. Of this total 1696 tons was titanium treated and 3471 tons manganese treated. Pennsylvania produced 701,092 tons of rails in 1925, this being 28.8 per cent of the country's total. Pennsylvania had eight active works. Alabama was second with three.

Production of Rails by Processes

GROSS TONS

Years	Open-hearth	Bessemer	Rerolled*	Electric	Iron	Total
1910	1,751,359	1,884,002	.....	‡	230	3,636,031
1911	1,676,923	1,053,420	91,751	462	234	2,822,790
1912	2,105,144	1,099,926	119,390	3,455	.....	3,327,915
1913	2,527,710	817,591	155,043	2,436	.....	3,502,780
1914	1,525,851	323,897	95,169	178	.....	1,945,095
1925	1,775,168	326,952	102,083	.....	.....	2,204,203
1916	2,269,600	440,092	144,826	.....	.....	2,854,518
1917	2,292,197	533,325	118,639	.....	.....	2,944,161
1918	1,945,443	494,193	101,256	.....	.....	2,540,892
1919	1,893,250	214,121	96,422	50	.....	2,203,843
1920	2,334,222	142,899	126,698	297	.....	2,604,116
1921	2,027,215	55,559	96,039	5	.....	2,178,818
1922	2,033,000	22,317	116,459	.....	.....	2,171,776
1923	2,738,779	25,877	139,742	118	.....	2,904,516
1924	2,307,533	16,069	109,730	.....	.....	2,433,332

*Rerolled from old steel rails. Included with bessemer and open-hearth steel rails in 1910.
‡Small tonnage rolled in 1910, but included with bessemer and poen-hearth rails for that year.

Winter Scrap *Most* Turbulent

By E. C. Barringer

Low Points in Heavy Melting Steel

Monthly Average Gross Tons Delivered Consumers Works

	Chicago		Pittsburgh		Eastern, Pa.	
1924	June	$13.55	May	$15.40	May	$14.20
1923	November	13.80	November	15.70	Oct.-Nov.	15.50
1922	February	11.15	January	14.50	January	11.75
1921	July	10.55	September	11.30	July	11.25
1920	December	16.75	December	1875	December	16.90
1919	February	14.90	March	14.60	March	14.25
1918	December	26.50	April-Dec.	29.00	December	25.00
1917	January	20.25	February	21.90	February	20.25
1916	July	14.15	August	16.00	July	13.95
1915	January	8.90	January	11.55	January	10.00
1914	Nov.-Dec.	8.25	November	10.40	Nov.-Dec.	9.50
1913	Nov.-Dec.	9.00	December	11.20	December	10.00
1912	February	10.75	March	12.40	February	12.00
1911	Nov.-Dec.	9.75	November	12.15	October	12.00
1910	Nov.-Dec.	12.00	November	14.15	December	12.50
1909	March	12.15	April	14.15	April	13.50

High Points in Heavy Melting Steel

1924	December	18.50	February	21.60	December	19.00
1923	March	23.15	March	26.10	March	24.85
1922	October	18.50	October	21.35	October	18.00
1921	Jan.-Feb.	15.25	Jan.-Mar.	15.00	January	15.00
1920	February	25.05	September	28.60	February	25.75
1919	December	21.25	December	24.65	December	23.90
1918	Feb.-Mar.	30.00	Jan.-Mar.	30.00	February	30.00
1917	June	37.00	July	40.25	July	37.00
1916	December	23.35	December	26.75	December	26.00
1915	December	15.40	December	17.40	December	16.00
1914	February	10.00	March	12.40	March	11.50
1913	January	12.75	January	15.15	January	14.50
1912	October	14.00	November	15.30	October	15.50
1911	Feb.-Mar.	12.00	March	14.40	Feb.-Mar.	14.25
1910	January	16.00	January	17.90	January	17.00
1909	October	16.30	November	18.15	Oct.-Nov.	18.00

ASK ten iron and steel scrap dealers at what time of the year the market touches bottom and nine will say: "In the spring."

Railroads then are picking up the winter waste along their lines, country accumulations are coming forward and the general clean-up stimulus of spring is bringing out sufficient material to depress the market, they will explain.

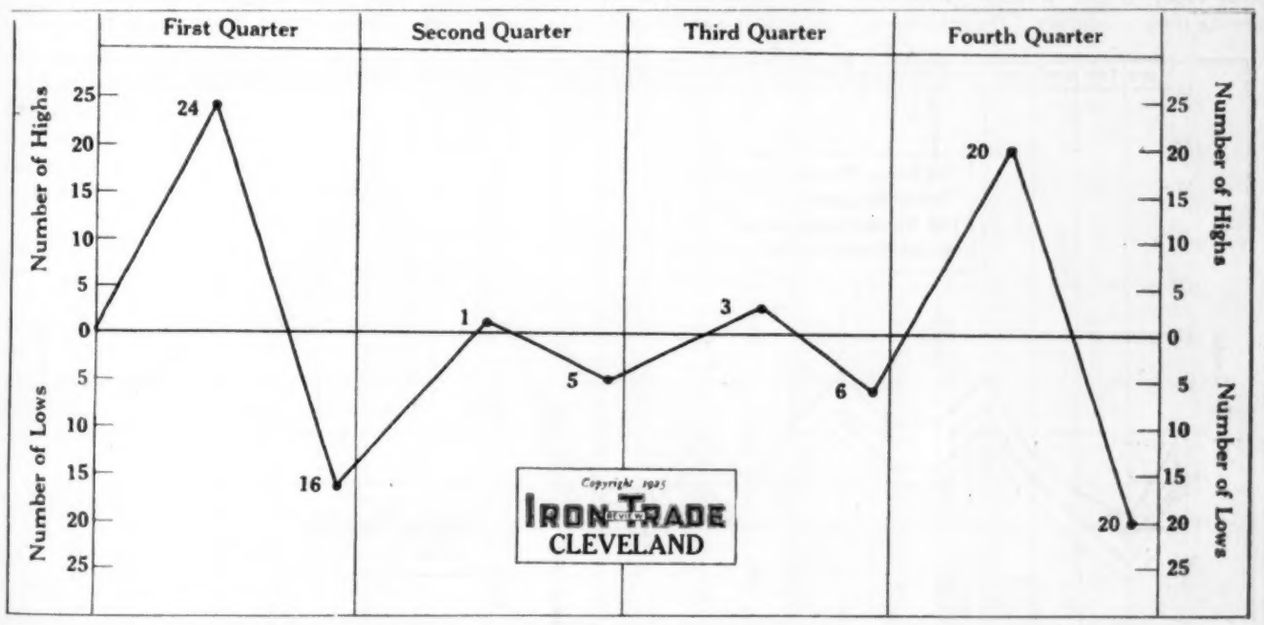
Yet there is no more to this belief of spring lows, which is as old as the industry, than there is to the popular superstitions concerning black cats and Friday the thirteenth. Market records prove this.

The fact is, the iron and steel scrap market is more stable in April, May and June than in any other months of the year. The market reaches its extremes 85 per cent of the time in the first and last quarters. In the past 16 years more peaks have been reached in the first quarter and more lows been set in the last quarter than at any other time.

This is proved by an analysis of IRON TRADE REVIEW quotations on heavy melting steel scrap at Pittsburgh, Chicago and eastern Pennsylvania by months since 1909. Heavy melting steel is selected because, in a general way, it is indicative of the entire scrap market. The period selected covers a fair range of prewar, war and postwar years. Where the monthly average price was the same over a 2-month period a half point was credited to each month.

The Pittsburgh, Chicago and eastern Pennsylvania markets on heavy melting steel from 1909 to 1924 inclusive present 48 monthly averages. January and Feb-

(*Concluded on Page 986*)



FIGURES IN THE ACCOMPANYING TABLE FURNISH THE CURVE FOR THIS GRAPH, INDICATING THAT SPRING, OR SECOND QUARTER, IS THE QUIETEST PERIOD OF THE YEAR IN SCRAP FLUCTUATIONS, RATHER THAN THE MOST VARIABLE, AS MANY BELIEVE

Ore Cut Averages 52 Cents

Nonbessemer Grades Down 50 Cents; High Phosphorus 40 Cents, and Bessemer 66 to 75 Cents—All Base Grades Put on Same Footing, with 51.50 Per Cent Iron Natural—Market Moderately Active

BY A. J. HAIN

A SUBSTANTIAL reduction has been made in the price of Lake Superior iron ore for the season of 1925. At the same time, an important change has been made in the base guarantee of bessemer ore. Instead of the base being 55 per cent metallic iron, as for many years, it has become 51.50 per cent. This is the same base as for nonbessemer ore.

Placing the two grades on the same basis makes it slightly more difficult to compare prices, but in general they are approximately 52 cents a ton less than last year. A reduction of 80 cents was made in 1924. On the quantity of ore used in making a ton of pig iron this represents a reduction of more than $2.50 in two years.

One of the largest producers in the Lake Superior district announced its prices April 4. Fair size sales were made in the open market, and other sellers adopted the same price levels. These now are generally quoted, and are applid to the long term contracts on which the bulk of the ore is sold by the independent producers.

The producer who first announced prices shared in an order placed by the Ford Motor Co. While details with respect to this business are not yet clear, it is reported that it was distributed among three producers. The original inquiry was for 160,000 tons; though sellers negotiating expected about 200,000 tons would be awarded. The actual tonnage was more than the amount of the inquiry; it was determined by figuring on a certain number of boatloads.

Lake Superior Iron Ore Unit Values

	OLD RANGE		MESABI	
	Bessemer Cents	Non-Bessemer Cents	Bessemer Cents	Non-Bessemer Cents
1925	10.000	9.708	9.708	9.417
1924	11.364	10.680	10.909	10.388
1923	12.818	12.233	12.364	11.942
1922	11.909	11.262	11.454	10.971
1921	12.818	12.233	12.364	11.942
1920	14.636	14.175	14.182	13.883
1919	12.818	12.233	12.364	11.942
*1918				
Oct. 1	13.182	12.621	12.727	12.330
July 1	12.727	12.136	12.273	11.845
Apr. 1	11.909	11.262	11.454	10.971
1917	11.909	11.262	11.454	10.971
1916	9.181	8.349	8.727	8.058
1915	7.909	6.990	7.455	6.699
1914	7.909	6.990	7.455	6.699
1913	9.091	8.155	8.636	7.767
1912	7.909	6.990	7.455	6.690
1911	9.273	8.349	8.818	7.961
1910	10.182	9.320	9.727	8.932
1909	9.271	8.350	8.818	7.961
1908	9.271	8.350	8.818	7.961
1907	10.182	9.320	9.727	8.932
1906	8.553	8.144	8.113	7.736
1905	7.671	7.107	7.231	6.792
1904	7.231	6.344	6.790	5.871
1903	8.994	7.954	8.112	7.196
1902	8.553	7.481	6.793	6.344
1901	8.553	6.818	6.793	6.344
1900	10.59	8.541	8.836	8.247

Fluctuations of iron ore prices expressed in values of units of iron in natural state.

*Figures for 1918 established by government.

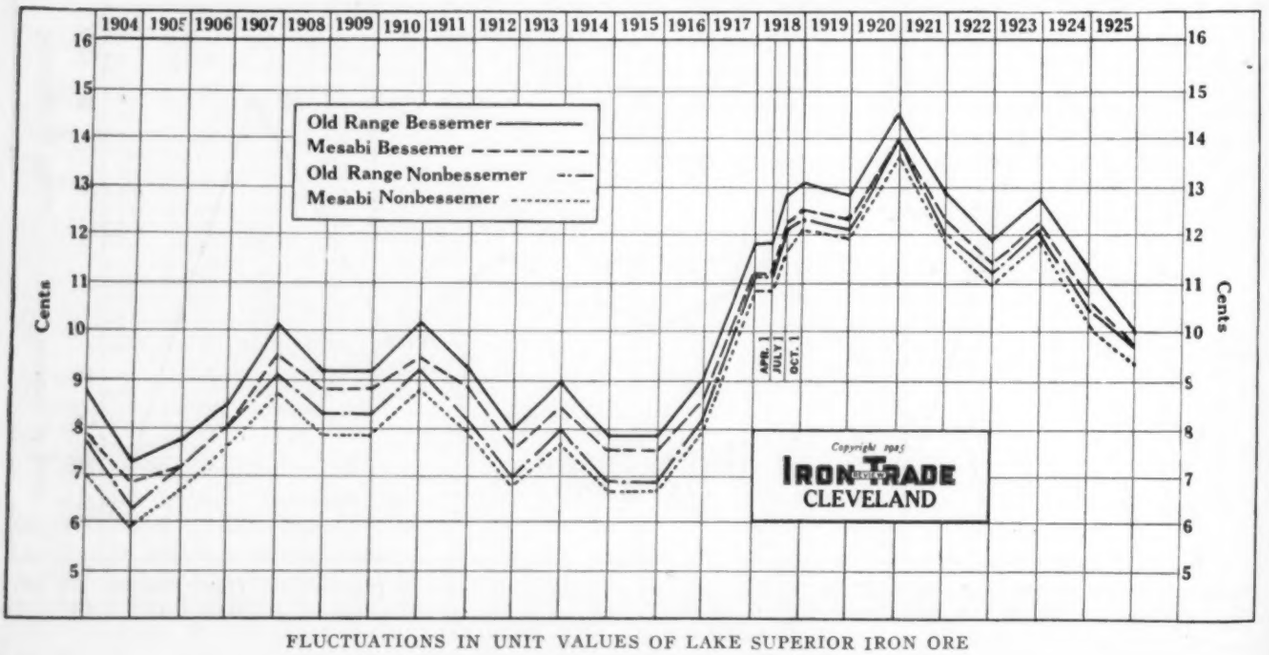
The new price of old range nonbessemer ore is $4.40, compared with $4.90 last year. Mesabi nonbessemer ore is $4.25 against $4.75 in 1924. The guarantee of 51.51 per cent iron natural in the base grade remains as heretofore. In both instances there is a flat reduction of 50 cents a ton.

The base price of old range bessemer ore now is $4.55, compared with the base price of $5.65 last year. On the surface this appears to be a reduction of $1.10 a ton. However, the grade determined as the base this year contains 51.50 per cent iron natural, instead of 55 per cent as last year. Using the unit value formula for making a comparison of equal grades, for 55 per cent ore this year the price would be $4.90. Last year the price for the 55 per cent grade was $5.65.

Mesabi bessemer this year is $4.40 for the 51.50 per cent base grade. For 55 per cent ore, the unit value formula would give a price of $4.74 compared with $5.40 for 55 per cent ore last year.

In addition to these grades some companies have been quoting on a high phosphorus ore with a guarantee of 51.50 per cent iron natural for the base grade. The price of this is $4.15, compared with $4.55 for like grade last year.

Summarized, on a comparable basis,



FLUCTUATIONS IN UNIT VALUES OF LAKE SUPERIOR IRON ORE

there is a reduction of 66 cents a ton on Mesabi bessemer; 75 cents on old range bessemer; 40 cents on high phosphorus; and 50 cents on old range and Mesabi nonbessemer.

Of the 44,000,000 tons of ore shipped in 1924, the proportion of nonbessemer ore was 25,000,000 tons. The greatest reduction in price will apply on those grades, constituting more than half the ore brought down from the Lake Superior district.

On the basis of last year's business there is a reduction in this item of $12,500,000. On old range bessemer there is a cut of $2,600,000; on Mesabi bessemer $5,500,000; on high phosphorus ore $1,500,000; and on silicious and other grades making up last year's total, approximately $300,000. In other words, the open market price of such an amount of the various grades of ore this year is approximately $22,400,000 less than the open market prices in 1924. On an average this amounts to about 52 cents a ton.

The new price schedules bring about a change in differentials in the price of Mesabi bessemer and old range bessemer. Last year the differential was 25 cents. This year it is 15 cents. The differential as between the high phosphorus ore and comparable Mesabi nonbessemer last year was 20 cents. This year it is 10 cents. This is due presumably to the better demand that is being experienced for the high phosphorus ore. Last year the shipment of this grade amounted to 3,835,000 tons. The differential in the case of the nonbessemer ores remains the same as last year, namely 15 cents.

The cause of the reduction in the differential on bessemer ore is the diminishing demand for this grade. Last year the tonnage shipped was less than one half that of the nonbessemer.

Another point in the arrangement of new schedules is that this year a rather definite line of demarcation will be established as between bessemer and nonbessemer ore. Ore above 0.045 per cent phosphorus will be considered nonbessemer, and all below as bessemer. In the past the line has been flexible, depending on other considerations. In this step is discerned an effort to make written standards conform more to actual practice.

There has been some talk of modifying the old method of determining unit values, but it applies for this year.

Percentage of Advances and Declines in Iron Ore and Pig Iron

Year	Date of Ore Buying	Mesabi Nonbessemer	Advance or Decline	Advance or Decline Per Cent	Basic Pig Iron Valley	Advance or Decline	Advance or Decline Per Cent
1925	April 4, 1925	$4.40	—$0.50	—10.2	$21.00	— $1.00	4.5
1924	April 4, 1924	4.75	— 0.80	—14.4	22.00	— 9.00	—29.0
1923	March 24, 1923	5.55	+ 0.50	+ 9.9	31.00	+ 6.00	+24.0
1922	June 9, 1922	5.05	— 0.50	— 9.0	25.00	+ 3.50	+16.2
1921	June 16, 1921	5.55	— 1.00	—15.2	21.50	— 18.50	—46.2
1920	Feb. 2, 1920	6.55	+ 1.00	+18.0	40.00	+ 14.25	+51.4
1919	April 28, 1919	5.55	.20	— 3.4	25.75	— 7.25	—21.9
*1918	Oct. 1, 1918	5.75	+ .25	+ 4.5	33.00	+ 1.00	+ 3.1
	July 1, 1918	5.50	+ .45	+ 8.9	32.00	.....	.....
	April 1, 1918	5.05	.....	.....	32.00	+ 7.00	+28.0
1917	Nov. 22, 1916	5.05	+ 1.50	+42.2	25.00	— 7.00	—38.8
1916	Dec. 7, 1915	3.55	+ .75	+26.7	18.00	+ 5.50	+44.0
1915	April 19, 1915	2.80	— .05	— 1.7	12.50	— .50	— 3.8
1914	May 1, 1914	2.85	— .55	—16.1	13.00	— 3.50	—21.2
1913	Nov 19, 1912	3.40	+ .55	+19.2	16.50	+ 3.50	+19.2
1912	March 20, 1912	2.85	— .65	—18.5	13.00	— .75	— 5.4
1911	April 21, 1911	3.50	— .50	—12.5	13.75	— 3.50	—20.2
1910	Dec 24, 1909	4.00	+ .50	+14.2	17.25	+ 3.00	+21.0
1909	May 10, 1909	3.50	.....	.....	14.25	— 1.25	— 8.0
1908	June 15, 1908	3.50	— .50	—12.5	15.50	— 6.50	—29.5

* Prices for 1918 established by the government

offering of new securities to stockholders and the underwriting of the reorganization plan, has been paid to the company. The consolidated balance sheet of the corporation and its subsidiaries shows $15,770,500 total secured funded debt. There are also outstanding $2,006,000 mortgage bonds of the old corporation, which may still be exchanged for bonds of the new company. The funded debt of the company will consist of $6,154,400 of unsecured five-year notes, class A, 7 per cent, and class B 6 per cent, due in 1930, and its stock capitalization will consist of 958,750 shares of capital stock of no par value, all of one class, representing net assets carried on the company's balance sheet at $9,891,589.

The following have been chosen as officials of the reorganized company: T. H. Wickwire, chairman of the board; Samuel F. Pryor, chairman of the executive committee; T. H. Wickwire Jr., president, and D. F. Edwards, first vice president. The directors will be as follows: Frederick B. Adams, Frederic W. Allen, C. K. Anderson, E. C. Bowers, L. E. Crandall, T. E. Hambleton, E. C. McDougal, G. V. Pach, P. A. Rockefeller, Charles J. Symington, George W. Treat, W. A. Wickwire and Richard B. Young.

Prices of Iron Ore and Pig Iron at Date of Ore Buying Movement, 1890 to 1925

Season	Date buying movement	Old range Bessemer	Mesabi Bessemer	Old range non-Bessemer	Mesabi non-Bessemer	Iron Prices Bessemer	Valley Foundry Iron No. 2
1925	April 4, 1925	$4.55	$4.40	$4.40	$4.25	$22.00	$21.00
1924	Mar. 24, 1924	5.65	5.40	4.90	4.75	23.00	22.00
1923	Mar. 24, 1923	6.45	6.20	5.70	5.55	31.00	31.00
1922	June 9, 1922	5.95	5.70	5.20	5.05	25.00	24.00
1921	June 16, 1921	6.45	6.20	5.70	5.55	23.00	22.50
1920	Feb. 2, 1920	7.45	7.20	6.70	6.55	41.00	40.00
1919	Apr. 28, 1919	6.45	6.20	5.70	5.55	27.95	26.75
*1918	Oct 1, 1918	6.65	6.40	5.90	5.75	35.20	34.00
	July 1, 1918	6.40	6.15	5.65	5.50	35.20	33.00
	Apr. 1, 1918	5.95	5.70	5.20	5.05	35.20	33.00
1917	Nov. 22, 1916	5.95	5.70	5.20	5.05	30.00	26.00
1916	Dec. 7, 1915	4.45	4.20	3.70	3.55	18.50	18.00
1915	Apr. 19, 1915	3.75	3.45	3.00	2.80	13.60	12.75
1914	May 1, 1914	3.75	3.50	3.00	2.85	14.00	13.25
1913	Nov. 19, 1912	4.40	4.15	3.60	3.40	17.25	17.50
1912	M .20, 1912	3.75	3.50	3.00	2.85	14.25	13.25
1911	Apr. 21, 1911	4.50	4.25	3.70	3.50	15.00	13.75
1910	Dec. 24, 1909	5.00	4.75	4.20	4.00	19.00	17.25
1909	May 10, 1909	4.50	4.25	3.70	3.50	14.75	14.25
1908	June 15, 1908	4.50	4.25	3.70	3.50	16.00	15.00
1907	Nov 5, 1906	5.00	4.75	4.20	4.00	21.50	21.50
1906	Dec. 5, 1905	4.25	4.00	3.70	3.50	17.25	17.25
1905	Feb. 1, 1905	3.75	3.50	3.20	3.00	15.50	16.00
1904	Apr. 15, 1904	3.25	3.00	2.75	2.50	13.35	13.15
1903	Mar. 20, 1903	4.50	4.00	3.60	3.20	21.50	21.65
1902	Feb. 1, 1902	4.25	3.25	3.25	2.75	15.90	15.90
1901	Apr. 15, 1901	4.25	3.25	3.00	2.75	16.15	14.40
1900	Dec. 15, 1899	5.50	4.50	4.25	4.00	24.15	22.15
1899	Feb. 1, 1899	3.00	2.40	2.15	2.00	10.30	9.75
1898	Mar. 20, 1898	2.75	2.25	1.85	1.75	9.55	9.80
1897	May 20, 1897	2.60	2.25	2.15	1.90	8.35	8.40
1896	May 1, 1896	4.00	3.50	2.70	2.25	12.40	11.15
1895	Apr. 1, 1895	2.90	2.19	2.25	1.95	9.40	9.40
1894	Mar. 1, 1894	2.75	2.35	2.50	no sale	9.65	9.65
1893	Mar. 15, 1893	3.85	3.00	3.20	no sale	12.65	12.15
1892	Jan. 31, 1892	4.50	no sale	3.65	no sale	15.00	13.65
1891	June 1, 1891	4.50	no sale	4.25	no sale	15.15	15.00
1890	Dec. 15, 1889	5.50	no sale	5.25	no sale	22.15	18.15

* Figures for 1918 established by the government

Wickwire Steel Corp. Plan Now Is Operative

The plan or reorganization of the Wickwire Spencer Steel Corp. has been declared operative and the $2,515,000 of new cash capital, provided through the

News of Societies

ANNOUNCEMENT of the tentative program for the spring meeting of the American Society of Mechanical Engineers at Milwaukee, May 18-21, has just been made by the society. Briefly the arrangement is as follows:

Monday, May 18

MORNING

Council meeting.

AFTERNOON

Business meeting, council meeting, boiler code public hearing and inspection trips.

EVENING

Reception.

Tuesday, May 19

MORNING

Machine Shop:
- Paper: "Recent Investigations in Turning and Planing and a New Form of Cutting Tool," by H. Klopstock.
- Paper: "A Code of Design for Mechanical Springs," by J. K. Wood.
- Paper: "Defects in Large Forgings," by J. F. Harper.

Pulverized Coal:
- Paper: "A Microscopic Study of Pulverized Coal," by L. V. Andrews.
- Paper: "Radiation in the Pulverized Fuel Furnace," by W. J. Wohlenberg and D. G. Morrow.
- Paper: "Boiler Furnaces for Pulverized Coal," by A. G. Christie.

AFTERNOON

Student branch conference and inspection trips including the Allis-Chalmers Mfg. Co. and Kearney & Trecker Co.

EVENING

Milwaukee session and visit to Central Continuation school.

Wednesday, May 20

MORNING

Materials Handling:
- Paper: "Formulas for Computing Economies of Labor Saving Equipment," by J. A. Shepard and G. E. Hagemann.
- Paper: "An Application of the Formulas for Computing Economies of Labor Saving Equipment," by George Langford Jr.
- Paper: "Labor Saving Equipment in Road Construction," by E. H. Lichtenberg.
- Paper: "Economic Efficiency of the Full Automatic Turret Lathe in Comparison with the Semiturret Lathe," by R. J. Wadd.

Materials:
- Paper: "X-Ray Examination of Steel Castings," by I. E. Moultrop and E. W. Norris.
- Paper: "Aluminum and Its Light Alloys," by R. L. Streeter and P. V. Faragher.
- Paper: "Stress Concentration Produced by Holes and Fillets," by S. Timoshenko and W. Dietz.

Industrial Power:
- Paper: "Torsional Vibrations and Critical Speeds of Shafts," by A. Lack.
- Paper: "Tests of a Uniflow Engine," by G. H. Barrus.

AFTERNOON

Inspection trips including Vilter Mfg. Co., Riverside pumping station and Falk Corp.

EVENING

Dinner meeting, address by Assistant Secretary of War Davis.

Thursday, My 21

MORNING

Apprenticeship:
- Paper: "A National Apprenticeship Program," by H. S. Falk.
- Paper: "Milwaukee District Apprenticeship Scheme."

Management:
- Paper: "Steel Foundry Management," by R. A. Bull.
- Paper: "Management of Gray Iron Foundries," by G. P. Fisher.
- Report of committee on elimination of unnecessary fatigue by G. H. Shepard.

AFTERNOON

Inspection trips including Lakeside power station and Nordberg Mfg. Co.

* * *

Honor Prominent Engineer

To celebrate as a national event the seventy-ninth birthday of Edward D. Adams, the well-known engineer, financier and philanthropist and vice chairman of the Engineering Foundation, several hundred leaders in American life arranged a dinner at the Waldorf-Astoria hotel, New York, April 9. Speakers were to include Dr. W. F. Durand, professor emeritus at Leland Standford university and president of the American Society of Mechanical Engineers; James M. Beck, solicitor general of the United States; A. Monro Grier, president of the Canadian Niagara Power Co. and Mr. Adams. Engineering, science, art, literature, transportation, finance, industry and club life were to be represented by friends of Mr. Adams in this public expression of appreciation of the achievements of his life.

* * *

Predicts Period of Prosperity

From four to six years of unusual prosperity in the metal industry has just started according to Homer D. Sayre, commissioner of the National Metal Trades association, who spoke recently before the twenty-first annual meeting of the Western Massachusetts branch of the association. This opinion Mr. Sayre bases largely on the study of the railroad needs of the country although he feels there will be many important contributing factors. Other speakers at the meeting of the association included Dr. E. P. Warner, professor of aeronautics at Massachusetts Institute of Technology, who spoke on the progress of commercial flying in Europe. Officers elected were: C. A. Mayer, president; H. C. Beaver, vice president; and A. D. Scott, treasurer.

* * *

Arrange Power Exposition

Heating and ventilating equipment will form one of the large sections of the fourth national Exposition of Power and Mechanical Engineering to be held in the Grand Central Palace, New York, Nov. 30 to Dec. 5. At the present time 95 manufacturers have taken space in which to exhibit all types of forced draft apparatus, heating devices, ventilating equipment and temperature regulators, as well as instruments and fittings used in the heating and ventilating field.

* * *

New Officers Are Elected

At the annual meeting of the Chicago branch of the National Metal Trades association held March 31, reports were made on two special activities of the organization. These were the apprenticeship plan, formulated by the branch apprenticeship committee in conjunction with the apprenticeship and training department of the national association, and the wage surveys. Both received favorable comment. Addresses were given by O. E. Bradfute, president of the American Farm Bureau Federation, Chicago, and C. S. Anderson, president of the Associated Industries of Massachusetts, Worcester, Mass. Officers for the coming year were elected as follows: President, C. H. Strawbridge, Goodman Mfg. Co.; vice president, C. E. Finkl & Sons Co.; treasurer, A. E. Blackwood, Sullivan Machinery Co.; and secretary, C. L. Blatchford, 139 North Clark street, Chicago. After 22 years service as secretary of the Chicago branch of the association, Paul Blatchford was appointed counselor.

Convention Calendar

April 22-23—National Metal Trades association. Annual meeting at Hotel Cleveland, Cleveland. J. E. Nyhan, Peoples Gas building, Chicago, is secretary.

April 22-25—American Welding society. Annual meeting at Engineering Societies building, 29 West Thirty-ninth street, New York. M. M. Kelly, 33 West Thirty-ninth street, New York, is secretary.

April 23-25—American Electrochemical society. Spring meeting at Niagara Falls, N. Y. Dr. Colin G. Fink, Columbia university, New York, is secretary.

April 27-29—National Supply Machinery Distributors' association. Twentieth annual meeting at Ambassador hotel, Atlantic City, N. J. George R. Fernley, 505 Arch street, Philadelphia, is secretary.

April 28-29—Southern Metal Trades association. Annual meeting at St. Anthony hotel, San Antonio, Tex. W. E. Dunn Jr., Healey building, Atlanta, Ga., is secretary.

May 5-7—Southern Supply and Machinery Dealers' association and American Supply and Machinery Manufacturers' association. Joint meeting at Atlanta-Biltmore hotel, Atlanta, Ga. F. D. Mitchell, 1819 Broadway, New York, is secretary-treasurer.

May 5-7—Sheet Steel Executives. Third annual meeting at Hotel Greenbriar, White Sulphur Springs, W. Va. Under auspices National Association of Sheet and Tin Plate Manufacturers. W. S. Horner, 1832 Oliver building, Pittsburgh, is chairman.

May 6-8—Society of Industrial Engineers. Annual meeting at Hotel Winton, Cleveland. George C. Dent, 608 South Dearborn street, Chicago, is executive secretary.

May 6-9—American Gear Manufacturers' association. Ninth annual meeting at William Penn hotel, Pittsburgh. T. W. Owen, 2443 Prospect avenue, Cleveland, is secretary.

May 7-8—Iron and Steel institute. Spring meeting at Institute of Civil Engineers, London.

May 8-9—American Construction council. Spring meeting at Hotel Biltmore, New York. Dwight L. Hoopingarner, 28 West Forty-fourth street, New York, is executive.

May 18-21—American Society of Mechanical Engineers. Spring meeting at Milwaukee. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

May 25-28—National Association of Purchasing Agents. Tenth international convention and exposition at auditorium, Milwaukee. W. L. Chandler, Woolworth building, New York, is secretary.

May 28-30—American Society for Steel Treating. Spring sectional meeting at Hotel VanCurler, Schenectady, N. Y. W. H. Eisenman, 4600 Prospect avenue, Cleveland, is secretary.

Foreign Steel Sales Increasing

European Invasion of American Markets to Send Up Purchases to 750,000 Tons This Year, Dealers Believe—Foreign Material $7 to $9 Under Pittsburgh Price—Exchange Rates Favorable for Transactions

BY E. C. KREUTZBERG

NEW YORK, April 7.—Considerable secrecy is observed in connection with sales of foreign steel in this country. It is known, however, that the tonnage involved has increased greatly during recent weeks. Heavy inroads have been made especially on the structural shape business of the Atlantic and Gulf Coast cities. Included in the names of the buyers are many well known concerns, some of whom not long ago were saying that they would not do any business in foreign steel.

"When you want to do business you have to meet the competition," says one of these buyers. "Some of our competitors have been buying foreign steel at $7 to $9 a ton below the quoted Pittsburgh delivered prices. You can make up your mind that we are doing the same thing when the business permits."

Importers predict that much more European steel is going to be imported into the United States in 1925 than last year. One importer estimates that sales of foreign steel along the Atlantic, Gulf and Pacific coasts will aggregate around 750,000 tons during 1925.

"Last year," he said, "a good deal of foreign steel was sold in the United States. Buyers had trouble with some of it, but most of it was satisfactory. The business done in 1924 served as a foundation to build up a good volume in 1925. The European steel not only has been introduced to many people, but the competitors of these buyers now are placing orders. The saving in price, as compared with American steel, is too great to be ignored."

Importers do not expect this European competition to last indefinitely. They believe it will continue as long as exchange rates are as at present. One importer says that under present conditions the United States is the best market for European steel.

Belgian mills recently have taken some important structural shape orders for eastern and Gulf ports. The prices on Belgian shapes are around 1.90c to 1.95c, base duty paid tidewater, or $38 to $39 per net ton. The 1.95c price applies to basic bessemer steel while for open-hearth about $1 higher is quoted. The extras added to the base price are substantially 40 per cent of the usual American extras, so that the savings on specific sizes are greater than indicated by the base prices.

Light rails are being sold right along. An instance has come to light where a lumber railroad in Mississippi is being equipped throughout with foreign steel at a much reduced cost. This business includes heavy and light rails in substantial tonnages. The light rails, under 30 pounds, are bringing about $42 per gross ton, duty paid, at Gulf ports. The heavy rails, including angle bars, range from $35 to $36.

A brisk business is being done in steel bars. Several large tonnages have been placed with importers in this general territory during the past two weeks. Prices on the bars range from 1.95c to 2.00c base, duty paid, plus extras which are about 40 per cent of the American extras. On concrete reinforcing bars the price is somewhat higher. European deformed bars have been sold here recently at 2.00c to 2.05c. Some progress also has ben made by Europeans in the American wire rod market. A moderate tonnage of Belgian wire rods has been sold at $48 per gross ton, duty paid, the duty being $6.72 per gross ton. Some galvanized barbed wire has been sold. There has been some business in No. 18 gage black sheets at 3.00c, net, duty paid.

European plates do not have a place in the competition. The lowest price quoted on European tank plates is 2.25c, base, duty paid, which does not represent enough of a saving to prove attractive.

It is understood that some European billets have been sold recently in the East but there is no confirmation of this.

Law Fixes Iron Values in Dumping Case

Washington, April 7.—In the anti-dumping investigation of pig iron imported into this country from India, now under way under the anti-dumping act of 1921, considerable inquiry has arisen as to what constitutes foreign market values under the law. The anti-dumping law provides that if the purchase price or the exporter's sales price is less than the "foreign market value," or in the absence of a foreign market value, or other export value, than the cost of production, a special dumping duty may be levied by the treasury department equal to the difference in price.

The foreign market value is defined as the price, at the time of the exportation to the United States, at which the product is sold "or freely offered for sale" to all purchasers in the principal markets of the foreign country in the usual wholesale quantities and in the ordinary course of trade for home consumption. If not so sold or offered for sale in the domestic market, then the price at which the product is exported to countries other than the United States is taken as the basis of calculation, plus the other charges incident to preparation for shipment.

In case an absence of foreign market value exists because of no sales in the foreign country's domestic market, and in the absence of other export markets, then the cost of production is to be used as a basis of calculation.

The American consul-general at Calcutta has submitted a report for the treasury on the domestic pig iron market situation in India, this now is in the hands of the anti-dumping unit in New York, now conducting the investigation.

Canada Drops Drastic Dumping Rules

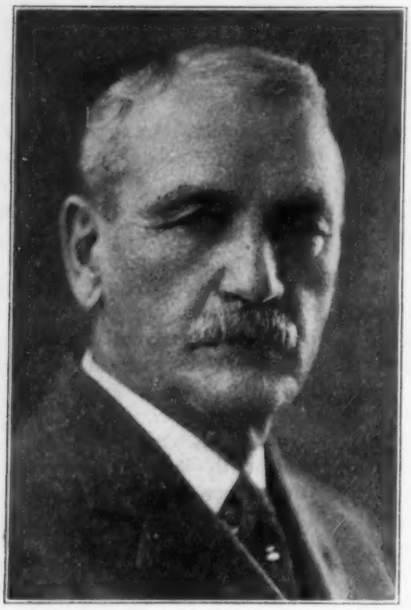
Washington, April 7.—Severe dumping regulations of the Canadian tariff law, which were scheduled to go into effect March 25, have been withdrawn and the former wording stands. The proposed dumping regulations sought to provide that articles imported into Canada would be subject to severe penalty when the export or actual selling price to the Canadian importer was more than 5 per cent less than the appraised value, it is stated in consular reports to the department of commerce.

Cuba Buys Building Steel

Washington, April 7.—Unusually large building programs in Havana in 1924, have placed structural steel requirements in Cuba on a high level, according to C. A. Livengood, Havana trade commissioner, in reports to the department of commerce. Competition from Europe, especially from Belgium and also from Luxemburg and Germany.

Industrial Men in the Day's News

John Frank Stevens, Awarded John Fritz Gold Medal for 1925



RECOGNITION of attainments in the engineering profession has brought him this distinctive award.

TRAVELING throughout the world, he has been active in the development of transportation facilities.

MANY are the honors which he has gained through his railroad building and Panama canal construction work.

DISTINCTIONS and awards without number have come to John Frank Stevens, in recognition of his accomplishments in and contributions to the engineering profession. Few, however, have had the unique importance which is attached to that just attained, the John Fritz gold medal for 1925. This award has come to be regarded by the engineering profession as the highest recognition for specific achievement.

Endowed with great creative ability along with high courage and broad vision, Mr.Stevens lists among his accomplishments some of the greatest construction projects in the world. These are briefly condensed in the citation for the award which was bestowed "for great achievement as a civil engineer, particularly in planning and organizing for the construction of the Panama canal; as a builder of railroads, and as administrator of the Chinese Eastern and Siberian railways."

His has been a practical education; without technical training, he has gained widespread knowledge and experience in the intricacies of engineering. Primarily a civil engineer, he has devoted much of his energies to the development of transportation facilities. Predominating in his achievements as a railroad builder is the construction of the Great Northern railway. While engaged in this duty he discovered the Marias Pass, reputed to be the best railroad pass across the Rocky Mountains and constructed the Cascade tunnel 13,873 feet long. What is claimed to have been his most romantic achievement was in the administration of the Chinese Eastern and Siberian railways during the war. Mr. Stevens, with a band of railroad men operated the crippled railroads in Siberia and eastern China, and kept upon the "back door to Russia," by which the Czech army completed its journey around the world to re-enter the war on the western front.

For his international attainments he has been awarded the distinguished service medal by the United States; has been made an officer of the legion of honor of France; and has been awarded the Czechoslavakian military cross; the second class order of the Rising Sun of Japan; the order of Chia Ho, China's highest civil decoration, and its highest military gift, the order of Wen Hu.

Mr. Stevens was born April 25, 1853 at West Gardiner, Me. He was educated in common schools there. In 1874 he followed Horace Greeley's advice, getting as far west as Minneapolis where he become assistant city engineer. In 1876 he became chief engineer of the Sabine Pass & North Western railway a post which he held until 1897 when he was made assistant engineer of the Denver & Rio Grande railway. From 1880 to 1882 he was with the Chicago, Milwaukee & St. Paul, which he left to become a division engineer of the Canadian Pacific. He returned to the Milwaukee road in 1886 as assistant engineer. Two years followed as principal assistant engineer in locating and building the Duluth, South Shore & Atlantic railway from Sault Ste. Marie to Duluth.

Later that year he entered the service of the Great Northern railway as principal assistant engineer and then followed his appointments as assistant chief engineer, chief engineer and in 1902 as general manager. In 1903 he became chief engineer of the Chicago, Rock Island & Pacific, and the year later its second vice president.

In 1905 Mr. Stevens was appointed chief engineer of the Panama canal and organized the construction work for the great waterway. In 1907 he was made chairman of the

Isthmian Canal commission. From 1907 to 1909 he was vice president of the New York, New Haven & Hartford railroad in charge of operations, and from 1909 to 1911 president of the Spokane, Portland & Seattle railway, Oregon Trunk railway and the Pacific & Eastern railway. From 1911 to 1917 he carried on a consulting practice in New York.

At the request of the Kerensky government, the United States sent a commission to Russia in May 1917, of which Mr. Stevens was chairman. He spent six years in Russia, Japan and Manchuria and returned to the United States in 1923.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

HUNTINGTON DOWNER, recently elected treasurer of the Dolomite Products Co., Cleveland, had been eastern sales manager of the company at Pittsburgh. The Dolomite company is discontinuing its Pittsburgh office and Mr. Downer will make his headquarters at the home office in Cleveland. He will continue to have supervision over the same sales territory as previously. Prior to his connection with the Dolomite Products Co., Mr. Downer was manager of the iron and steel department of the Iron Trade Products Co., Pittsburgh. Before that he was sales manager in charge of the Philadelphia office of the Lackawanna Steel Co.

* * *

Henry R. Bettis for nine years with the Illinois Tool Works, Chicago has been made vice president and sales manager of the Midwestern Tool Co., that city, manufacturer of hobs, milling cutters and thread hobs, etc. For seven years previous to his connection with the Illinois works he had been with the Union Twist Drill Co., Athol, Mass.

* * *

R. O. Hendrickson who just joined the Belle City Mfg. Co., Racine, Wis., manufacturer of agricultural equipment, as chief engineer, formerly was vice president in charge of engineering of the J. I. Case Plow Works Co., that city.

* * *

William C. Wolfe has been appointed district sales manager of the welded and weldless division with headquarters at room 690, 208 South La Salle street, Chicago, for the American Chain Co., Inc., Bridgeport, Conn. He succeeds George C. Isbester, resigned.

* * *

C. S. Durkee for 18 years connected with J. H. Williams & Co., Buffalo, N. Y., manufacturer of drop forgings and drop forged tools, has been appointed western district sales manager in charge of sales in the West and Southwest, with offices and warehouse at 117 North Jefferson street, Chicago. For the past two years he had been in charge of the Central Sales district with headquarters at Buffalo.

* * *

George M. Graham of the Westinghouse Air Brake Works, Wilmerding, Pa., has been appointed paymaster of that company, it was officially announced last week. Mr. Graham has served many years in the paymaster's office. The airbrake company had been without an official paymaster three years.

DANIEL H. MELOCHE

* * *

J. W. Porter, just elected vice president of the Hammond Iron Co., Birmingham, Ala., manufacturer of cast iron water, gas and sanitary pipe, formerly was vice president and general manager of the Alabama Co. Mr. Porter, who has had 25 years experience in the coal and iron industry, will have charge of the coal, coke and pig iron business of the Hammond Iron Co. H. Hammond is president of that company.

* * *

Daniel H. Meloche of the Holley Carburetor Co., Detroit, has been honored with the award of the Edward Longstreth medal by the Franklin institute, for his invention embodied in long life molds. Mr. Meloche, who is but 36 years old, probably is the youngest man to receive this medal, in the approximately 160 to be so honored. Although the process has been patented by Mr. Meloche other organizations are using it through lease.

* * *

Lyle Marshall, formerly manager of the service department of the Industrial Works, Bay City, Mich., and later connected with the Chicago office of that company, recently has been appointed district sales manager with offices at 619 Dixie Terminal building, Cincinnati, O.

James E. Shearer, assistant sales manager of the Industrial Works, has moved his headquarters from the home office to 50 Church street, New York. George T. Sinks, remains in charge of the New York district.

* * *

L. E. Honeywell, who has just joined the Sterling Mfg. Co., Cleveland, as advertising manager and sales promotion manager, previously was connected with the National Acme Co., that city, machine tool builder, as advertising manager. He had been connected with the National Acme Co. for 15 years. The Sterling company manufactures electrical automotive equipment and radio sets and parts.

G. S. Tracy, formerly assistant manager of the advertising department of the National company, has succeeded Mr. Honeywell as advertising manager.

* * *

J. J. Bray, for 19 years connected with the sales department of Dunham, Carrigan & Hayden, one of the oldest and largest distributors of steel products on the Pacific coast, and well known to the trade, has associated himself with Milton Pray Co., which represents Trumbull Steel Co., Kirk-Latty Mfg. Co., Cleveland; Bridgeport Screw Co., Bridgeport, Conn.; Union Drawn Steel Co., Beaver Falls, Pa.; American Zinc Products Co., Townsend Co., New Brighton, Pa.; and the Cleveland Steel Co., Cleveland. Mr. Brady will make his headquarters in San Francisco at the main office of Milton Pray Co.

Will Pigs Be Pigs? Is Scrap a False Prophet? Nature and Tin Cans

—as Pittsburgh Sees It

BY W. H. LLOYD

PITTSBURGH, April 7.—"I'll bet you a good sized hat (I wear a large size) that within two years pig iron will be sold as pig iron; there will be no price distinction between bessemer and basic, malleable or foundry." So spoke a merchant blast furnaceman here last week, and added:

"Why should there be any difference in the price? We are buying our bessemer ore for the same price as non-bessemer and it costs no more to make the iron. In fact, we get better runs from our coke when we are making bessemer than when we are making basic. You watch. We will some day be dispensing pig iron like the corner drug store dispenses soda water. You can buy any one of a number of different flavors at the same price. You will soon be able to buy any one of a number of different pig irons at the same figure."

* * *

"Sure, we are going to have a vertical college. We have had horizontal ones long enough, spread all over the landscape; now we are going to see what straight up and down education will do for the rising generation," said a man prominently identified with the drive soon to commence for a fund of $10,000,000 with which to erect the 52-story cathedral of learning for the University of Pittsburgh. Incidentally, none of the numerous rooms and halls will be numbered, all will be known by some name which has been notable in the community. Each room will be marked by a bronze tablet bearing the name which it is to commemorate, with the name of the donor.

* * *

Said a prominent scrap dealer in Pittsburgh recently:

"It looks much as if the present slump in scrap is going to give the lie to its efficacy as a barometer. Usually in the past when the scrap market has fallen steadily, the decline has preceded a more or less long-drawn-out period of depression in the iron and steel industry. Notwithstanding what some say, history of last year is not going to repeat itself; the conditions this year are vastly different. This year, steel prices are lower than they were last, and that will encourage buying. Last year, the automobile companies all had bought for first half and some for the first nine months of the year; this year little buying has been done for second quarter by the automotive industries, and none for third; that all is yet to develop. This year, the farmers' potential power is far greater. He has much more money to spend and the farmer represents 51 or 52 per cent of the country's population. Last year our selling power abroad was hampered by various things and hindered in various ways; this year undoubtedly many more sales abroad will be consummated. Last year steel mill operations were slackening at this time; this year they not only are well sustained at a high average but are increasing in some cases where they were being curtailed."

* * *

Sounds of raucous, uncontrolled laughter from the wild and woolly western centers of civilization and industry. Why? They have just heard that Pittsburgh, the so-called "smoky city," the sooty, black, grimy city of fables and imaginations, but the city of steel mills, blast furnaces and other money producing industries, is to have a pure white street car. No, it does not disseminate temperance society literatures, nor is it for the use of members of the purity, pare or probe league. It is a "Safety first" car. On it in large letters are printed slogans, such as "Safety Ever—Accidents Never," "Always Alert, Nobody Hurt," "Do Not Depend on Others; Look to Your Own Safety," "Take Safety Seriously—It Is No Joke to Get Hurt," "Today Is Safety Day—Be Safe," "Think Before You Act," "Carelessness Causes Casualties," and "Ignorance Invites Injury."

* * *

"Now if nature does not give the packers an uppercut as she did last year and on many previous occasions, 1925 will see a huge total tin plate consumption for fish, food, fruit and vegetable packs," said an important tin plate producer in Pittsburgh last week. "It will at least be a normal year from the standpoint of tin plate manufacture, shipment and use, and already while we have orders for all the tin plate we can produce in the first half, some canmakers are finding they have underestimated their needs. They are calling on us for more material and are commencing to hound us by telephone, telegraph, letter and personal calls for expedited deliveries. We know this is not to obtain tin plate for immediate use, but they are afraid that in the hot summer months will come the usual defection of labor that delivery will be somewhat curtailed. All this is true, but with the continued good transportation facilities afforded by practically all the railroads, we are continuing to render our customers excellent service and no doubt will be able to furnish them with all the tin plate they can use."

* * *

After a record run of more than 60,000 miles, the steamer WILLIAM G. CLYDE of the Carnegie Steel Co.'s line had her first accident several days ago, breaking her shaft. The steamer had left New Orleans bound for Pittsburgh when the accident occurred. The boat returned to that port and laid up for repairs. The steamer, which had made seven round trips to the southern port with large tows of steel products, was on the eighth run and also has done considerable pool work.

Cleveland Cliffs Iron Has Deficit After Dividends

The annual report of the Cleveland Cliffs Iron Co., Cleveland, shows net profits for 1924 of $862,524, compared with $3,092,114 in 1923. After allowing $1,012,527 for depreciation and depletion and paying dividends of $1,200,000, a deficit of $337,475 resulted. A large portion of the company's business consists in the marketing of iron ore. President W. G. Mather in his report to stockholders, does not hold out a great deal of encouragement for better profits in 1925. Although the volume of iron ore traffic will be greater, he declares, keen competition may lower prices.

The income account follows:

	1924	1923
Operating profit	$ 1,527,535	$ 3,722,151
Total profit	1,875,052	4,225,576
Depreciation and depletion	1,012,527	1,133,461
Net profit	862,524	3,092,114
Dividends	1,200,000 †	800,000
Added to surplus	*337,475	2,292,114
Surplus Jan. 1, 1924	22,246,022	19,953,907
Surplus Dec. 31, 1925	21,908,547	22,246,023

*Deficit.

†Dividends aggregating $999,148 were actually paid in 1923 of which $199,148 was declared in December, 1922, and charged to surplus in that year.

The balance sheet shows current assets as of Dec. 31, 1924, at $20,072,425 against $6,660,366 current liabilities, leaving $13,412,058 of working capital, a decrease of $121,408 from 1923.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

GRAY-GREGORY GALVANIZING CORP., Buffalo, recently incorporated, will operate a jobbing galvanizing plant under the hot dip process at 220 Larkin street, Buffalo. Operations commenced in earnest April 1 the company having taken over the old plant of the Buffalo Car Wheel Foundry Co. It has a New York Central railroad siding and daily capacity at the start is 50 tons with 30 or more workmen employed.

Following are the officers of the new company, all of whom have had more than a quarter century of practical experience in jobbing galvanizing and who are affiliated with other galvanizing plants: President, Thomas M. Gregory, who also is president of the Thomas Gregory Galvanizing Works, Brooklyn, N. Y., the Jersey City Galvanizing Co., Jersey City, N. J., president of the Cemetery Supplies Corp., Brooklyn, N. Y., vice president and general manager of the Hanlon-Gregory Galvanizing Co., Pittsburgh and vice president and general manager of the Duquesne Zinc Co., Pittsburgh; vice president and general manager, Robert Gray, who has full charge of operations of the new plant, and previously operated the Buffalo Sherardizing Co., Buffalo; treasurer, William J. Gregory, who also is treasurer of the Thomas Gregory Galvanizing Works, Brooklyn, the Jersey City Galvanizing Co., the Cemetery Supplies Corp., secretary of the Hanlon-Gregory Galvanizing Co., and secretary of the Duquesne Zinc Co.; and secretary, Philip Koob, who has been general manager of sales for the Thomas Gregory Galvanizing Works and the Jersey City Galvanizing Co.

* * *

GRAY & DUDLEY, Nashville, Tenn., have started an addition to their stove foundry and will utilize it in the production of a gas stove. Houston Dudley is vice president of the company.

* * *

LYNCH & JOHNSON, 53 East Hunter street, Atlanta, Ga., have added a department for the manufacture and erection of steel tanks, smokestacks and fire escapes, as well as other products of steel plates and sheets.

* * *

FEDERAL RADIATOR & BOILER CO. has been organized as a subsidiary of the Kellogg-Mackay Co., 1531 West Thirty-seventh place, Chicago, and will manufacture radiation at Zanesville, O.

* * *

DAY-EVANS IRON WORKS INC., Knoxville, Tenn., has started production in its new plant, turning out mine cars, wheels and similar equipment. The plant includes foundry and cupola, machine shop, blacksmith and carpenter shop.

* * *

DISMUKE IRON WORKS, INC., 416 Thirtieth street, Columbus, Ga., recently organized, has elected W. H. Dismuke Sr., president and W. H. Dismuke Jr., general manager. Its product will be metal appliances for building construction and fireplaces.

* * *

SHORTAGE of common labor is causing demand for machinery for digging trenches, and the Moore Trench Machine Co., Rockaway, N. J., finds heavy demand for this class of machines. The company was founded six years ago and has expanded its facilities each year.

* * *

DOMINION ALLOY STEEL CORP., Sarnia, Ont., will start production of galvanized sheets about April 1 in its new plant, the first unit of which is nearly complete. The capacity of this unit is about 30,000 tons per year. Directors of the company elected at its recent meeting include W. B. Boyd, Toronto, president; C. A. Orr, Cleveland; R. V. Deseur and W. H. Kenny, Sarnia, and C. Harold Wills, Marysville, Mich.

* * *

PERKINS MFG. CO., 785 Fourteenth street, Newark, N. J., recently incorporated with James O. Perkins president, Harold T. Fountain vice president and Bernard Heinzman secretary-treasurer, manufactures automatic devices. It plans to build a plant in the fall but at present is having its castings and machine work done by contract. It is in the market for aluminum castings, special fibre, felt, springs and factory equipment.

* * *

E. T. STOTESBURY has been chosen president of the Temple Iron Co., Reading, Pa., and H. M. Muhlenberg secretary and treasurer. Directors include Mr. Stotesbury, who is chairman of the Reading Co.; W. H. Truesdale, president of the Delaware, Lackawanna & Western railroad; F. D. Underwood, president of the Erie railroad; E. E. Loomis of the Lehigh Valley railroad; W. H. Richards, president of the Philadelphia & Reading Coal & Iron Co.; A. T. Dice, president of the Reading Co.; W. G. Besler, president of the Central Railroad of New Jersey and Leon E. Thomas, president of the Reading Iron Co.

* * *

REORGANIZATION of the R. M. Hartwell Co., Los Angeles, Calif., distributor of mill and machine shop supplies, 329 East Second street, has been completed under the name of the Industrial Supply Co. A warehouse and offices have been established at 345 East Third street. E. M. Buckius of the Los Angeles Valve & Fittings Co. has been elected president, succeeding Robert M. Hartwell. H. L. Horton is vice president.

* * *

CHANGES affecting the personnel of the merchandising and power departments and the New York district office managership, effective April 1, are announced from headquarters of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

J. S. Tritle is made general manager of the merchandising department and will transfer his headquarters from the Westinghouse building in New York City to Mansfield, O., exercising a general supervision over all activities, manufacturing, engineering and sales of the merchandising department.

C. E. Stephens, formerly manager of the central station division, New York office, has been appointed manager of the New York sales office in place of A. E. Allen who has resigned to accept a position with the Westinghouse Lamp Co.

The changes in the power department follow: A. H. Ganshird, formerly manager of the condenser section, is appointed manager of the turbine section, power department, to succeed D. O. Tyle, transferred to the industrial division, Pittsburgh office; P. N. Fetzer is appointed manager of the condenser section to succeed Mr. Ganshird; J. A. Brown is appointed manager of the generator section to succeed W. Loften, transferred to the Pittsburgh office, central station division; F. J. Lewis is appointed manager of the substation section, to succeed B. H. Lytle, transferred to the Philadelphia office.

Obituaries

GEORGE C. HOLMGREEN, vice president of the Alamo Iron Works, San Antonio, Tex., and vice president of the Southern Metal Trades association died there March 31 following a surgical operation. Mr. Holmgreen was one of the most prominent industrial men in San Antonio and was a past district governor of International Rotary clubs for Texas.

* * *

William A. Carpenter, for 19 years furnace superintendent of the Mitchell Diggins Iron Co., died recently in Cadillac, Mich.

* * *

Mason Decker, chief engineer of the Bergen Point Iron Works, Bayonne, N. J., died recently of heart failure, 48 years old.

* * *

Nelson Ewing, 38 years old, connected with the sales department of the Wheeling Steel Corp., Wheeling, W. Va., died April 1 from pneumonia.

* * *

J. A. McGregor, head of the mechanical department of the Union Twist Drill Co., Athol, Mass., died March 26 at his home there.

* * *

H. G. Van Nostrand, of the sales force of the Illinois Steel Co., Chicago, died recently. Before joining the Illinois organization last June, he had been for many years with the Railroad Supply Co., Chicago.

* * *

Harry S. Cantrovitz, for many years president of the Western Rawhide & Belting Co., Milwaukee, died March 28 after a brief illness, at the age of 62 years. He was born in LaCrosse, Wis., and became associated with the Western company in 1900, retiring two years ago from active business.

* * *

Walter P. French, treasurer of E. J. Lavino & Co., Philadelphia, died at his home in that city, March 24, following an illness of two days with bronchial pneumonia. He also was treasurer of the Lavino Furnace Co., the Lavino Refractories Co. and the Lavino Shipping Co. Mr. French formerly was assistant cashier of the Girard National bank, Philadelphia. He was 49 years of age.

* * *

Logan Grant McPherson, economist and organizer and first director of the bureau of railway economics, died recently in St. Luke's hospital, New York, at the age of 62. He was a leading authority on rail and water transportation. He was affiliated with several railroads during his career and while connected with the Baltimore & Ohio, was a lecturer on transportation at Johns Hopkins university. He gave considerable attention to the coal industry, studying conditions at first hand for about nine years.

* * *

Newman Erb, financier, lawyer, copper magnate and operator of railroads, died March 25 in the Roosevelt hospital, New York, following an operation. Mr. Erb was born in Germany 74 years ago and came to America with his parents at the age of three. He first became active in the life insurance business. In 1881 he entered the railroad field in which he was destined to become one of the great powers. He organized and became president of the Western Telegraph Co., which later was merged into the Western Union system.

* * *

Milton Henry Freeman, chief engineer of the New York-New Jersey vehicular tunnels, died March 25 at his home in Valhalla, N. Y., of acute pneumonia. Mr. Freeman succeeded Clifford M. Holland as chief engineer when the latter died Oct. 27. Mr. Freeman was a tunnel engineer of wide experience. In 1905, two years after graduation from the University of Michigan, he joined in building the Pennsylvania tunnels under the East river, New York. In 1914, he entered the employ of the Public Service commission of New York and remained five years as resident engineer in the construction at Clark street, Sixtieth street and Fourteenth street subway tunnels. Mr. Freeman then became resident engineer in the employ of the Interstate Tunnel commissions and in 1921 was made engineer in charge of construction. He was born in Crary Mills, N. Y., in 1871, and was a member of several organizations, including the American Society of Civil Engineers and the Brooklyn Engineers club.

* * *

Harry A. Grusch, aged 50, purchasing agent of the United Engineering & Foundry Co., Pittsburgh, died April 4 in his home on the North Side of that city. He resided in Pittsburgh all his life and had been affiliated with the United Engineering company for the past 30 years.

The General Electric Co. of Bridgeport, Conn., has distributed over $1,000,000 as supplementary compensation to those of its employes who have been with the firm over five years.

Winter Scrap Market Is Most Active

(*Concluded from Page 977*)

ruary each had six lows, March four, April and May two each, June one, July four, August and September one each, October one and one half, November eight and December 10½. The forty-eighth calculation is omitted because in 1918 the market at Pittsburgh was pegged from April to December.

Scanning this 16-year period at these three consuming centers for the high monthly averages of the year, January accounted for seven and one half, February seven, March seven and one half, April and May none, June one, July two, August none, September one, October six and one half, November two and one half and December 11. Both in 1918 and 1921 at Pittsburgh prices were unchanged from January through March.

Summing up the high and low months by quarters, the result is:

	Highs	Lows
First quarter	24	16
Second quarter	1	5
Third quarter	3	6
Fourth quarter	20	20

Thus, out of 95 extremes of high and low (1918 at Pittsburgh is omitted on account of the fixed market April to December) exactly 80 occurred in the closing and opening quarters of the year. Out of 47 lows, only five occurred in the second or spring quarter.

One dealer, after examining these figues, ventures the explanation that by the end of the first quarter the general business trend for the year may be discerned, hence fewer extremes in the months from March to October, inclusive.

As one year draws to an end and the new one opens uncertainty and speculation account for the great number of highs and lows, he believes. Transportation difficulties and scarcity of material can have no effect because there have been just as many lows as highs in the last quarter while in the first quarter the score is 24 highs to 16 lows.

It is interesting to note that the highest monthly average for heavy melting steel at Pittsburgh, Chicago and eastern Pennsylvania since 1909 has been $40.25, at Pittsburgh in July, 1917, while the low point was reached at Chicago, $8.25, in November and December, 1914.

The accompanying tables of high and low monthly averages at Pittsburgh, Chicago and eastern Pennsylvania reveal a parallel sympathetic movement. A high or a low at one of these consuming centers is invariably accompanied by a similar condition at the other two.

Better Weather Helps Warehouses

April Business Starts at High Rate; Prices Lower at Buffalo

GENERAL betterment is noted in the iron and steel warehouse market. Better weather has had a stimulating effect upon business, and some dealers have reported the last week as one of the best this year. Demand is improving steadily. Prices remain firm, except in a few centers. Buffalo jobbers revised the entire list during the past week, cutting most products $1 a ton, but dropping $3 a ton on reinforcing bars and $8 a ton on hoops, which declined from 4.40c to 4.00c per pound.

Business in the New York market the first week of April has been as good as the similar period of March, which was the best in some time. Shapes and reinforcing bars continue in principal demand, with galvanized and blue annealed sheets also active. Prices are steady with few prospects of a revision in the near future.

Pittsburgh warehouse operators report conditions as being increasingly better. March witnessed the best aggregate tonnage moved from warehouse stocks in several months. Prices are firm and the outlook for April is attractive.

Demand is improving at Buffalo with more seasonal weather for building, and sales of iron and steel during the past ten days show a good increase.

Conditions remain unchanged at Detroit. Operators report a fair amount of new business and that a slow increase in orders is apparent. Structural products are in good demand.

Cincinnati markets are spotty with buyers utilizing every possible means to force down prices. Some dealers are offering slight concessions to effect sales but this practice is not general. Many warehouse dealers report buying at its lowest level in over a year.

Ideal weather for building is reflected in increased sales of structural materials by St. Louis warehouses. The movement of such goods to the South shows excellent improvement, and is considerably in excess of the same period a year ago.

Philadelphia jobbers have reduced prices on sheets $3 a ton, making blue 3.70c, base, black 4.70c and galvanized 5.85c.

In number of orders, warehouse business at Chicago is normal but in tonnage it is subnormal. With the mills making record shipments and the railroads handling them without delay consumers of iron and steel have not had to fall back on the warehouses.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.25c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.20c
New York	3.24c
Philadelphia	3.20c
Pittsburgh	2.90c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.25c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.20c
St. Louis	3.15c

REINFORCING BARS

Boston	3.25c to 3.50c
Buffalo	3.25c
Chicago	2.60c to 2.70c
Cincinnati	3.30c
Cleveland	2.85c to 3.10c
Detroit	3.15c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	2.80c
Philadelphia	2.80c to 3.20c
Pittsburgh	2.30c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.25c
New York	3.34c
Philadelphia	2.80c to 3.25c
Pittsburgh	3.00c
Portland	3.35c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Los Angeles	3.25c
New York	3.34c
Philadelphia	2.80c to 3.20c
Philadelphia, 3/16-inch	3.00c to 3.40c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	4.00c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.45c to 3.75c
Detroit	4.00c
Los Angeles	4.20c
New York	3.89c
Philadelphia	3.70c
Portland	4.50c
San Francisco	4.20c
Seattle	4.50c
St. Louis	3.90c
St. Paul	4.05c

NO. 28 BLACK SHEETS

Boston	5.20c
Buffalo	4.70c
Chicago	4.50c
Cincinnati	4.55c
Cleveland	4.35c to 4.55c
Detroit	4.65c
Los Angeles	5.25c
New York	4.60c
Philadelphia	4.70c
Portland	5.50c
San Francisco	5.25c
Seattle	5.50c
St. Louis	4.80c
St. Paul	4.85c

NO. 28 GALVANIZED SHEETS

Boston	6.25c
Buffalo	5.80c
Chicago	5.50c
Cincinnati	5.65c
Cleveland	5.45c to 5.65c
Detroit	5.75c
Los Angeles	6.25c
New York	5.60c
Philadelphia	5.85c
Portland	6.50c
San Francisco	6.25c
Seattle	6.50c
St. Louis	5.80c
St. Paul	5.65c to 5.90c

BANDS

Boston	4.015c
Buffalo	4.00c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.20c
New York	3.99c
Philadelphia	3.95c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.00c
Chicago	4.15c
Cleveland	3.85c
Detroit	4.30c
New York	4.49c
Philadelphia	4.20c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.70c

COLD FINISHED STEEL

Boston (shapes)	4.65c
Boston (rounds)	4.15c
Buffalo (rounds)	4.15c
Buffalo (shapes)	4.65c
Chicago (shapes)	4.30c
Chicago (rounds)	3.80c
Cincinnati (rounds)	4.05c
Cincinnati (shapes)	4.55c
Cleveland (rounds)	4.00c
Cleveland (shapes)	4.50c
Detroit (rounds)	4.10c
Detroit (shapes)	4.60c
Los Angeles (rounds)	5.25c
New York (rounds)	4.15c
New York (shapes)	4.65c
Philadelphia (rounds)	4.15c
Philadelphia (shapes)	4.65c
Pittsburgh (rounds)	3.80c
Pittsburgh (shapes)	4.30c
Portland	5.00c
San Francisco (rounds)	5.25c
Seattle (rounds)	4.75c
St. Paul (rounds)	4.05c

FOREIGN IRON AND STEEL

Swedish hollow drill steel New York, duty paid	15.00c
Swedish iron bars round New York, duty paid	6.75c
flats and squares, New York, duty paid	7.00c

WELDED PIPE

Discounts from warehouse, New York City

Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—23	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6 inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
⅛ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 9
3 to 6-inch lap	—11	+ 6
7 to 12-inch lap	— 3	+16

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

ROSEDALL, ALA.—Rushton Corp. has had plans prepared for an ice plant at Rosedall, the first unit to cost $50,000 and later additions to double this expenditure.

CAMDEN, ARK.—Clark Brothers Co. has contract for engine and compressor equipment in Skelly Oil Co. gasoline plant in Louann field which will consist of 16 units and cost approximately $250,000. Emby Kaye, Skelly building, Tulsa, Okla., is general superintendent of gasoline department.

LITTLE ROCK, ARK.—George Garrison & Son, 417 Main street, manufacturers of sheet metal specialties, have bought a site 100x300 feet and will build a plant 50x150 feet.

LITTLE ROCK, ARK.—Southern Plating Works, 807 Broadway, has let contracts for additional equipment, to increase capacity, to Bebberg Iron Works, Little Rock, and Frederick B. Stevens Co., Detroit. J. E. Goetschious is owner.

ALHAMBRA, CALIF.—Hadden Automatic Sprinkler Co., Los Angeles, will build a plant at 1101 South Meridian street.

LOS ANGELES.—Walworth Mfg. Co., Boston, plans erection of branch factory here, following visit of Howard Coonley, president.

LOS ANGELES, CALIF.—Baker Ice Machine Co. has let a contract to the Austin Co. of California for a 1-story plant 100x104 feet at Anderson and Artemus streets.

LOS ANGELES, CALIF.—Paraffine Companies, Inc., 903 North Main street, producer of coal tar products, has awarded contracts for two buildings, 100x190 feet and 180x360 feet.

OAKLAND, CALIF.—Rip Van Winkle Wall Bed Co., 792 Twenty-second street, will build an addition adjoining its plant.

SAN FRANCISCO.—Schlage Lock Co., 485 California street, is building a plant 100 x 210 feet at Bay Shore and San Bruno avenues.

BRIDGEPORT, CONN.—The Atlas Body Works of this city, is having plans prepared by Harry C. Koerner, for the erection of a 2-story branch plant 100 x 100 feet, 136th street and Southern boulevard, New York City.

HARTFORD, CONN.—A $2,500,000 plant for the production of coal tar by-products will be erected here by the Hartford Coke Co.

STAMFORD, CONN.—Richards & Co., Ludlow street, has awarded a contract to J. W. Ferguson Co., Paterson, N. J., for a chemical plant 80 x 240 feet.

WILMINGTON, DEL.—Safety Air Brake Co. has been incorporated with $400,000 capital to manufacture mechanical compressed air devices. American Guaranty & Trust Co. is correspondent.

DAYTONA, FLA.—Coast Dredging Co. has been incorporated by F. A. Root, president, and A. E. Connelly secretary.

JACKSONVILLE, FLA.—Florida Screen Mfg. Co. has been incorporated with $30,000 capital to manufacture screens by W. B. Wunfield, president, G. M. French, secretary, 2021 Gilmor street.

LAGRANGE, GA.—LaGrange Iron Works,

Industrial Business Changes

SALES offices of Western Manning, Maxwell & Moore, Inc., at San Francisco, C. H. Overkamp, resident manager, have been removed from 40 Fremont street to the Rialto building. A separaate warehouse is maintained for machinery and supplies.

* * *

Western Manning, Maxwell & Moore, Inc., has removed its Los Angeles sales offices to 412 East Third street, in Machinery Row.

* * *

Best Mfg. Co., Cleveland, manufacturer of plumbing specialties, has built a new plant in Detroit which is just being occupied.

* * *

Wickwire Spencer Steel Corp., Buffalo, N. Y., has changed its name to Wickwire Spencer Steel Co. Inc.

* * *

Oilgear Co., 655 Park street, Milwaukee, Wis., has appointed Strong, Carlisle & Hammond Co., 1392 West Third street, Cleveland, sales agent for its products.

* * *

The Harnischfeger Corp., Milwaukee, has appointed A. M. Lockett & Co., New Orleans, sales agents for most of Louisiana and a portion of Mississippi.

* * *

Detroit Valve & Fittings Co. and Detroit Brass Works, Detroit, Mich., have been united under the name of the Detroit Brass & Malleable Works.

* * *

National Foundry & Repair Co., recently organized at Cincinnati, Martin Block president, succeeds the National Stove Repair Co., which has been in operation seven years.

* * *

F. W. Marshall & Co., Pennsylvania building, Philadelphia, have been appointed pig iron sales agents for the Delaware River Steel Co., Chester, Pa.

* * *

M. Schnable, president of the Pine Bluff Iron Works, Pine Bluff, Ark., has bought the interests of C. Rannenberg and Frank Richen, both of whom will retire from the company after many years activity.

* * *

Firth-Sterling Steel Co., E. S. Jackman & Co., agents, has moved its sales office at Los Angeles, Calif., from 336 East Third street to larger quarters at 2154 Santa Fe avenue. William Ely Nelson is Pacific Coast representative.

* * *

William W. Hearne, Inc., Real Estate Trust building, Philadelphia, has been appointed sales agent for drop forgings produced by the Billings & Spencer Co., Hartford, Conn., for Pennsylvania and the states South, and in parts of New Jersey.

* * *

Page Steel & Wire Co., 215 North Michigan avenue, Chicago, has appointed J. J. Flaherty director of sales of welding rod wire, with headquarters at Bridgeport, Conn. A welding service department to handle welding rod problems has been established by this company.

* * *

William T. Bate & Son Inc. is the new firm style under which the foundry and machine shops of the former William T. Bate & Son partnership, Conshohocken, Pa., will be conducted. The interest of the Bate family have been bought by E. L. Gibbs and Thomas H. Nelson of Canton, O., and A. E. Maskrey of Titusville, Pa. An electric furnace is to be installed.

R. J. Higginbotham president, is having plans made for an addition to its plant.

NAMPA, IDA.—Work will begin in early April on construction of the 18 buildings for the Pacific Fruit Express Co.'s car shops plant here. Rowland & Nielsen have the contract. Trackage for light, medium and heavy work has been increased over original estimates. The total is now placed at 47½ miles within the yards, nine miles to be laid at once.

ALTON, ILL.—Illinois Glass Co., William E. Levis, president, Broadway and Washington streets, will build an addition to its plant and enlarge its power plant. Jackson & Moreland Co., 31 St. James avenue, Boston, are engineers in charge.

CHICAGO—Kellogg Box Board Co., 2555 West Taylor street, is having plans made by Moore & Heely, 219 East Superior street, for a boiler plant and mill.

CHICAGO—Mack International Motor Truck Corp. has bought four acres at Wentworth avenue and Thirty-third street on which it will build a service station and plant.

CHICAGO—American Bolt Corp., 1732 North Kolmar avenue, is building a plant at Forty-seventh street and Turner avenue in the Central manufacturing district with 85,000 square feet of floor space, 306 x 410 feet.

CHICAGO—Field Engineering Co., 3606 Lincoln avenue, has been incorporated with $100,000 capital to manufacture engines, tools and heating devices by Philip F. Richards, William C. Asay and Wallace Streeter. Folson, Asay & Streeter, 105 West Monroe street, are correspondents.

CICERO, ILL—Roscoe Metal Products Co., 1522 South Fifty-second street, has been incorporated with $15,000 capital to manufacture metal products by Walter R. Holton, Clarence Kammerman and Howard S. Cartwright. William A. Bither, 1119 Capitol building, is correspondent.

MUNCIE, IND.—Benton Harbor Malleable Co., J. M. Clark president, Benton Harbor, Mich., has let contracts for rebuilding its burned foundry to the Indiana Bridge Co., Muncie.

NEW CASTLE, IND.—National Spring Co., F. J. Trainer president, will build a 1-story plant 80 x 240 feet. The Austin Co., Cleveland, has the general contract.

NEW ORLEANS—The Autocycle Co., Inc., has been incorporated to manufacture refrigerating machinery and is seeking plant and machine tool equipment including precision and flat turret lathes.

SHREVEPORT, LA.—McClain-Hoe Service Co., New York, has leased building comprising 3200 square feet floor space for manufacture of circular saws and accessories. The company is negotiating for a site for larger plant. Present machinery orders have been placed. J. F. Welch is local manager.

SHREVEPORT, LA.—W. H. Werner has contract for basement and machinery foundations for Southwestern Gas & Electric Co. new generating plant. Contract price was $127,000. Edward F. Neild, architect, is completing plans for remainder of building for which bids will be asked.

FREDERICK, MD.—Hunter Heating Co. will make plant improvements including foundry, cupola, machine and pattern shop.

BOSTON—The Townsend Envelope Machine Co. has been incorporated for $30,000 by Joseph M. Townsend, Worcester, Mass., Wallace E. Freeman, Haverhill, Mass., Hiram T. Folson, Hamilton, Mass., W. Warner Lang, Boston, and Elmer R. Beeler, Boston.

NEW BEDFORD, MASS.—The New Bedford Boiler & Machine Co. will build a reinforced concrete 4-story warehouse 60 x 166 feet.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

NORTH ADAMS, MASS—North Adams Gas & Electric Co., B. K. Cook manager, is receiving bids for construction of a gas plant. W. M. Russell, 77 Franklin street, Boston, is architect.

BENTON HARBOR, MICH.—Warner Auto Accessories Co. has been incorporated with $50,000 capital to manufacture automobile accessories and parts by Clarence T. Warner, B. F. Wells and J. A. Spangler.

DETROIT, MICH.—Detroit Lubricator Co. is planning a new foundry plant.

DETROIT, MICH.—Federal Tool & Dies Co. has been incorporated with $100,000 capital to manufacture tools, dies and patterns by Harry R. Jamison, G. F. Classon and Gustav Groehn, 400 Burns drive.

ECORSE, MICH.—National Smelting & Refining Co., Harry Greene, secretary and treasurer, 1842 Illinois avenue, Detroit, is taking bids on a reinforced concrete and steel plant.

JACKSON, MICH.—Specialty Mfg. Co. has been incorporated with $10,000 capital to manufacture automobile accessories by George H. Bigelow, John F. Glaster and Harvey Tappan Jr., 600 Greenwood place.

LUDINGTON, MICH.—The Pere Marquette railway will erect a $50,000 coaling station here. Construction is to start immediately. A $10,000 water supply plant is also to be constructed at Baldwin.

MINNEAPOLIS—Buss Metal Window Co., 2728 Nicollet avenue, O. W. Buss, president, is preparing to build a 1-story plant 30 x 100 feet.

ST. JOSEPH, MO.—Zeidler Concrete Products Machinery Co. has been incorporated with $250,000 capital by Arthur Petri and F. L. Bauer, 528 North Noyes boulevard.

ST. LOUIS—Midwest Artistic Bronze Co., 906 North Market street, Charles C. Strotz, president, will build and equip a plant 80 x 100 feet for the manufacture of bronze and brass castings.

WEBSTER GROVES, MO.—Old Orchard Sheet Metal Works has been incorporated by Walter E. Goez and Victor Briedenbach.

LIVINGSTON, MONT.—Fire at Mammoth Springs, Yellowstone National park, destroyed park transportation headquarters building, garage with 100 passenger coaches, machine shop and auto repair shop.

GARWOOD, N. J.—Work will be started shortly by the H. Wales Lines Co., Meriden, Conn., general contractor, on a 4-story addition to the plant of the Aeolian Co. The addition, with equipment, will cost $200,000.

UNION HILL, N. J.—Eleven large manufacturing buildings completely equipped with railroad and river transit facilities are to be built on a 45-acre tract on the Hackensack river in New Jersey, at a cost of $7,000,000 according to an announcement by Samuel Littauer, president of the Weehawken Realty Co., 422 Lewis street, Union Hill, N. J. It is intended to make the section ultimately a manufacturing center similar to the Bush terminal.

BROOKLYN, N. Y.—Quaker City Metal Bed Corp., 183 Lewis street is having plans drawn for a 1-story plant 100 x 100 feet. W. J. England Jr., 4 Berry street, Brooklyn, has general contract.

BROOKLYN, N. Y.—Extruded Metals Corp. has been incorporated with $300,000 capital to manufacture machinery and foundry and factory supplies by F. S. King, 8630 114th street, Richmond Hill.

BUFFALO, N. Y.—Niagara Falls Smelting & Refining Corp., 1070 Niagara street, is in the market for briquetting machines to produce metal bricks.

BUFFALO, N. Y.—Truscon Steel Co., Youngstown, O., has leased a site 150 x 400 feet at William street and Bailey avenue and will build two warehouses.

ELMIRA, N. Y.—Titan-Rite Co. has been incorporated with $10,000 capital to manufacture machinists' tools by B. L. and L. A. Coleman and E. Cornwell. Bentley & Bush, Horseheads, N. Y., is attorney.

FRIENDSHIP, N. Y.—Drake Electric Hoist Co. has been incorporated with $60,000 capital by M. C. and H. B. Drake and F. E. Follinger, Mapes & Ytter are attorneys.

HAWTHORNE, N. Y.—Theodore Weidanz has been incorporated with $10,000 capital to manufacture machinery by Theodore Weidanz, Adolph Weidanz and Charles Weidanz. Joseph A. O'Brien, New York, is attorney.

NEW YORK—Crotona & Essex Co. has been incorporated with $1000 capital to manufacture motors by D. M. Rosenbaum, L. F. Leahy and L. E. Inkels. P. Rusgo, 1971 Mapes avenue, is attorney.

NEW YORK—Berrill Mfg. Co., has been incorporated with 100 common shares no par value to manufacture automobile supplies by C. H. Berrill, E. S. Burrows and H. P. Pierce. Lanca, Bell & Montesano, Buffalo, are attorneys.

NEW YORK—General contract for the rebuilding of the Long Island railroad repair shops at Morris Park, N. Y., has been placed with the Turner Construction Co., 242 Madison avenue. The damage done by the fire amounted to about $500,000.

NEW YORK—Bids will be taken shortly by the Madison Iron Works, 449 East 120th street, for a $55,000 plant, two stories, 75 x 100 feet, at Radel avenue and Tiffany street. George A. Bagge & Sons, 299 Madison avenue, are architects.

ALLIANCE, O.—Contracts will be awarded shortly for the new plant to be built at Mt. Union by the McCaskey Register Co. A factory building and office building will be erected. Machinery will be electrically driven. Lockwood, Green & Co., Hanna building, Cleveland, are engineers.

CINCINNATI, O.—American Counting Scale Co. has been incorporated with $50,000 capital by Robert S. Pein, William E. Watson, John Mager and others.

CLEVELAND—Ohio Clutch & Machine Co. has been incorporated with $10,000 capital by James P. Swanda, John C. Maher, John Swanda and others.

CLEVELAND—Modern Sheet Metal Works Co. has been incorporated with $10,000 capital by Rae Letter, Gertrude Parnes, Ben P. Bloom and others.

CLEVELAND—Cleveland Trencher Co. has bought a 2-acre site at St. Clair avenue and 200th street and will erect a plant. The Austin Co. has the general contract.

CLEVELAND—Star Machine & Tool Co., J. J. Schurger president, 11810 Hamlen avenue, is taking bids on a 1-story plant 34 x 100 feet.

CLEVELAND—Kline Spring Co., Allen R.

Kline president, Babbitt road, has let a contract to Charles Peterson Co., 4500 Euclid avenue, for a 1-story plant 50 x 100 feet.

CLEVELAND—Pipe Machinery Co., W. C. Bennington, president, 932 East Seventieth street, has let contract to W. Dunbar Co., 8201 Cedar avenue for a 1-story addition 57 x 130 feet.

CLEVELAND—Bryant Heater & Mfg. Co., 952 East Seventy-second street, E. P. Bailey, president, will build a plant at East 179th street and St. Clair avenue, 147 x 300 feet. The general contract has been awarded to the DeHamel Construction Co.

COLUMBUS, O.—Shartle Machinery Co. is in the market for two used 30 to 25-ton standard gage saddle-tank locomotives for an Ohio user.

HAMILTON, O.—Safetygas Iron & Products Co. has been incorporated with $15,000 capital by C. W. Simpson, Frank D. Sheley, Fenton G. Slifer and others.

BARTLESVILLE, OKLA.—Vinita, Bartlesville & Western railroad has made application to interstate commerce commission for permission to build from Vinita to Ponca City, Okla., about 75 miles. C. E. Burlingame is president of the company.

HOLDENVILLE, OKLA.—Holdenville Refining Co., capital $50,000, incorporated by L. W. Harris, H. V. Schaff and J. E. Turner to build and operate oil refinery. Stills, agitators and other equipment are needed. L. W. Harris is president.

McALESTER, OKLA.—The plant of Quinton Smelter Co. at Quinton recently was damaged by fire. New machinery replacement is needed. The company specializes in ore mining and smelting.

OKLAHOMA CITY, OKLA.—Oil Marketers Equipment Co., Harry Land, general manager, is contemplating erection of plant for manufacture of gasoline pumps and air compressors.

OKLAHOMA CITY, OKLA.—Oklahoma Carriage & Auto Works shop destroyed by fire. It is expected that plant will be rebuilt. Blacksmith and machine shop equipment will be needed. C. W. Rathburn is general manager.

TULSA, OKLA.—Foster-Hoefer Corp., manufacturers of oil tools, will build machine shop costing approximtely $50,000. Company is now negotiating for available site. R. E. D. Foster, 209 Central National Bank building, is vice president and general manager.

TULSA, OKLA.—J. A. Hull Oil Co. plans construction of an absorption natural gasoline plant on its properties near Winfield, Kans. Bids for furnishing engines and compressor equipment, etc., are invited. W. A. Malton, Kennedy building, is head of the gasoline department.

BETHLEHEM, PA.—Holland Furnace Co., Holland, Mich., R. Bisscher, secretary, is having plans made for a 2-story plant here.

GIRARD, PA.—Plant of the Lake Erie Foundry Co. severely damaged by fire, will require rebuilding.

HARRISBURG, PA.—Bids will be closed April 13 on a $1,000,000 manual training school, including several shop units.

HAZLETON, PA.—Work will be started shortly by the Hazel Brook Coal Co. on the erection of a $9000 coal breaker.

LITTLESTOWN, PA.—Littlestown Hardware & Foundry Co. will build an addition 50 x 100 feet, adjoining its foundry.

PHILADELPHIA—A $10,000 shop addition will be erected by Grundy & Svenson 4923 North Fifth street, manufacturers of metal and wood patterns.

PHILADELPHIA—General contract for the erection of an $18,500 manufacturing building for the James Campbell Co., Carswell and Haynes, has been awarded to George T. Clayton, 1817 North Twentieth street.

PHILADELPHIA—Bids are being received by Carson & Carson, 22 South Fifteenth street, engineers, on the erection of a 60 x 200-foot office and galvanizing shop for Cattie Bros. Corp., 1712 North Ninth street.

PITTSBURGH—Pittsburgh Coal Co. will build a tipple at Douglas Hollow on the west bank of the Youghiogheny river, capacity 4000 tons per day, with shaker screens and rotary dump, to replace tipples at three mines now in operation.

BALLINGER, TEX.—The West Texas Utilities Co. of Abilene is negotiating for the purchase of the municipal electric light and power plant at Ballinger for a proposed consideration of $85,000. The proposition has been approved by an advisory committee of seven ctizens, acting with the city council.

CHILDRESS, TEX.—The electric power plant of the Central Texas Power Co. at Childress is being enlarged at a cost of $250,000. From this plant power transmission lines will run to Clarendon, 56 miles west, and to Kirkland and Acme, 21 miles east.

CORSICANA, TEX.—The Sherrard Tubing Guard Co. has been incorporated with $10,000 capital by W. M. Huggins, C. E. McBryde, to manufacture oil well machinery.

CUERO, TEX.—The city council has been petitioned to call an election on the proposition of issuing $150,000 bonds, for construction of a municipal electric light and power plant. The Central Texas Power Co. is at present operating here.

HOUSTON, TEX.—Hindman Tool Co., Inc., has been incorporated with $10,000 capital by W. F. Beers, S. J. Hindman and J. W. Hindman.

HOUSTON, TEX.—North Side Belt Railway Co., capital $100,000, chartered by T. J. Arnold, A. M. Johnson and J. Y. Powell to construct terminal railroad.

HOUSTON, TEX.—Houston Pipe Line Co., capital $15,000,000, has completed survey for 200-mile gas pipe line from Live Oak county gas fields to Houston. Line will consist of 16-inch, 18-inch and 20-inch pipe and it is understood National Pipe Co. has contract. Considerable miscellaneous equipment including meters, gate valves and booster station equipment will be needed. E. H. Buckner is president and general manager.

HUNTSVILLE, TEX.—The commissioners' court of Walker county has granted the Western Public Service Co., Colorado Springs, Colo., a franchise to build power transmission lines along the public roads of the county. The company recently purchased the local electric light plant from the Huntsville Cotton Oil Co.

MALAKOFF, TEX.—The Texas Power & Light Co. will begin the construction of large machine shops one mile north of here and near the site of its proposed large electric power plant. Preparations for starting work on the power plant are going forward rapidly.

PADUCAH, TEX.—The Paducah Light Co. is installing new machinery and equipment which will double the capacity of its electric light and power plant.

VERNON, TEX.—The Vernon Electric & Ice Co. will construct an ice plant here to cost $60,000.

BURLINGTON, WIS.—The Holmquist Curtain Stretcher Co., formerly located in Chicago, has leased a factory building on Wilmore avenue here and is purchasing special machinery for fabricating metal frames with adjustable features. Production will start about June 1.

EAU CLAIRE, WIS.—R. L. Rickman, local contractor, has been awarded a 1-story brick, steel and concrete addition, 70 x 180 feet, for the Gillette Rubber Co.

MANAWA, WIS.—Bids close April 15 with J. C. Kinsman, village clerk, for a complete water works system with 10,000 feet of main. Two 500-gallon centrifugal pumps, motor driven, will be purchased.

MILWAUKEE—Lindsay Bros. Co., owners

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.50 to 10.00
Algerian low phosphorus, 52 to 54 per cent	nominal
Swedish and Norwegian low phosphorus, 68 per cent.	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.50 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent....nominal
Indian, minimum 47 per cent....nominal
Caucasian, 53 to 55 per cent ....
....Washed, 43 to 44 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00 to 20.00
Washed gravel, imported duty paid eastern tidewater, per net ton	17.00 to 17.50

of the building at 50-64 Reed street, badly damaged recently while occupied by the Modern Grinder Mfg. Co., will rebuild three floors, 65 x 135 feet, at a cost of $50,000 work to start immediately.

RACINE, WIS.—The Racine board of education has selected Architects Perkins, Fellows & Hamilton, Chicago, to prepare plans for the proposed new high school, to cost $500,000 to $750,000. Frank Schaefer is secretary.

RACINE, WIS.—Articles of incorporation have been filed by the Badger State Mfg. Co., capital stock $10,000, to build all kinds of engines and motors. The incorporators are C. E. and E. J. Buhler and E. L. Buelow.

WEST ALLIS, WIS.—The Donovan Construction Co., St. Paul, is lowest bidder at $43,700 for installing a municipal street illuminating system with ornamental metal posts. The A. C. Electric Co., Milwaukee, bid $45,990, and the R. P. Rausch Electric Co., Wauwatosa, Wis., $54,200.

WISCONSIN RAPIDS, WIS.—A factory addition will be erected by the Prentiss-Wabers Products Co., manufacturing camp cook stoves and other metal specialties for tourists.

CENTRALIA, WASH.—City is planning a 3,000,000-gallon reservoir . C. B. Shain, hydraulics engineer, has been engaged to supervise the plans and work.

CHEHALIS, WASH.—County commissioners will open bids April 10 for construction of an 80-foot steel span, concrete piers, also a 100-foot steel bridge, concrete pier.

PORT ANGELES, WASH.—Northwestern Power & Electric Co. is planning dam, reservoir and other hydro-electric development estimated to cost $800,000.

SEATTLE, WASH.—Hofius Steel & Equipment Co., which is building a new plant, has had plans prepared for a structural steel building, 100 x 220 feet of solid concrete foundation, galvanized iron siding and steel sash.

TACOMA, WASH.—Washington-Cascade Paper Co. is planning a $400,000 pulp mill adjoining the present paper plant.

TACOMA, WASH.—City light plant is planning expenditure of $95,000 in changes and additions to the distributing system.

TACOMA, WASH.—County commissioners will open bids April 30 for a $30,000 power plant and laundry, of reinforced concrete. Laundry machinery, two boilers and other equipment will be purchased.

Business in Canada

LIVERPOOL, B. C.—Having chosen this town on the Fraser river, as the site of its British Columbia distributing center, the Canada Creosoting Co., will at once commence the construction of huge storage tanks here and also the initial unit of a plant that will eventually involve the expenditure of $250,000.

KITCHENER, ONT.—John G. Klaehn, 129 King street west, is preparing plans for addition to the factory of the Goodrich Rubber Co., here to cost $100,000.

KITCHENER, ONT.—The Ott Brick & Tile Co., is asking for a 75 horsepower alternating current, 550 volt, 3 phase, 25 cycle, 500 to 750 revolutions per minute motor; also one or two horsepower motor of above type.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 46.00
Pennsylvania, No. 2	40.00 to 43.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	40.00 to 43.00
Illinois, No. 1	43.00 to 45.00
Illinois, No. 2	40.00 to 43.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	40.00 to 42.00
Missouri, high grade	48.00 to 50.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	$40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	$65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	$48.00

LONDON, ONT.—The Empire Brass Mfg. Co., is in the market for an air operated collet chuck.

MIDLAND, ONT.—McFarlane, Pratt & Hanley, Ltd., have the general contract for the erection of a grain elevator here to cost $300,000.

MITCHELL, ONT.—It is announced that the Wettlaufer-Mitchell Machinery Co., has been incorporated for the purpose of manufacturing exclusively all lines of machinery formerly manufactured by Wettlaufer Bros., Ltd. of Toronto, Ont. The new concern will carry on its manufacturing activities here. Arrangements are being made for the erection of a new plant near the Canadian National railway station here. Robert Stroud, who has been in charge of the manufacturing branch of Wettlaufer Bros., here will be general manager of the new concern.

OWEN SOUND, ONT.—The Harriston Stove Works has started work on an addition to its plant here to cost $10,000 and will require equipment.

OWEN SOUND, ONT.—Barnet & McQueen, Fort William, Ont., have the general contract for the building of an elevator here for the Great Lakes Elevator Co., to cost $50,000.

PETERBORO, ONT.—It is announced the hydro electric commission of Ontario is planning further extensions in the Campbellford district near here. It is also proposed to erect a dam and power house at Allan's Mills on the Crowe River, about 12 miles from this city.

TORONTO, ONT.—It is reported the Hepworth Pressed Brick Co., Hepworth, Ont., has decided to move its plant to this city.

GRAND MERE, QUE.—The Dominion Electric Heating Co., propose to build a factory here to cost $50,000. Manager M. T. D. Gazelle, 140 Amherst street, Montreal, Que.

MONTREAL, QUE.—Tramways commission has authorized construction of about 50 miles of new street railway lines.

MONTREAL, QUE.—Bids are asked by the city on ten motor-driven fire engines of 1000 gallons capacity, with hose cars.

MONTREAL, QUE.—The Harbor Commissioners are having plans prepared for enlarging grain elevator No. 3 on Tarte Pier. The addition to have a capacity of 3,000,000 bushels.

New Trade Publications

BEARINGS MATERIAL—A slow-wearing material produced by combination of several metals has been produced by J. E. Loudon & Co. Boston, is described in a current booklet which tells of the tests that led to its adoption and results it has shown when in service in bearings.

BRASS DATA—The sixteenth in its series of data books has been issued by the Bridgeport Brass Co., Bridgeport, Conn. It offers 48 pages of tabular information of value to users of the materials produced by this company.

CHUCKS—Skinner Chuck Co., New Britain, Conn., has issued a catalog of its lathe, drill and planer chucks and face plate jaws and vises, with prices, sketches and dimension data.

CRANES—Various types of cranes and hoists for many purposes in industry are presented briefly in a bulletin by the Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

FOUNDRY SUPPLIES—A catalog describing foundry supplies has been issued by the H. B. Sackett Screen & Chute Co., Chicago.

INDUSTRIAL DISTRICT—Maps and descriptive matter relating to the Fairfax industrial district of Kansas City, both Missouri and Kansas, have been issued by the Union Pacific railroad, which serves it. This district is being developed in sections and new industries added according to a plan laid down for the entire district.

LIFTING MAGNETS—Uses of magnets in the iron and steel industry are discussed and illustrated in a booklet by the Ohio Electric & Controller Co., Cleveland. A wide range of use as lifting and separating agents is presented.

MANGANESE STEEL—A circular by the American Manganese Steel Co., Chicago Heights, Ill., serves as a tabloid textbook on manganese steel. It contains a list of nearly all the uses of this steel so far developed and a catechism on the nature and properties of the material.

PUNCH RIVETERS—Illustrations and text descriptive of the rapid punch riveter manufactured by the Hanna Engineering Works, Chicago, are presented in a booklet issued by that company. The anatomy of the riveter and illustrations showing the variety of positions in which it can be applied to the work make clear its application to various classes of punching and riveting.

SAW—A high production swing saw is described in a booklet published by the Oliver Machinery Co., Grand Rapids, Mich. This saw finds application in the pattern shop. A new style swing saw table also is described.

WIRE DRAWING—Continuous wire drawing machines produced by the O. & J. Machine Co., Worcester, Mass., are illustrated in a catalog just issued.

Sheet Extras and Differentials

Black Sheets

Gage Differentials

Gage	Price per 100 pounds
30 Add	$0.20
29 Add	0.10
28 (Carload quantities)	Base
27 Deduct	0.05
25-26 Deduct	0.10
22-24 Deduct	0.15
17-21 Deduct	0.20
15-16 Deduct	0.25
13-14 Deduct	0.30
10-12 Deduct	0.35

BLACK EXTRAS FOR WIDTH

Gages	Under 12 inches to 6 inches	Under 24 inches to 12 inches	24 inches to 32 inches	Over 32 inches to 36 inches	Over36 inches to 40 inches	Over 40 inches to 44 inches	Over 44 inches to 48 inches
10 to 16	0.20	0.10	Base	Base	Base	Base	Base
17 to 18	0.25	0.15	Base	Base	0.05	0.05	0.05
19 to 21	0.25	0.15	Base	Base	0.15	0.15	0.25
22 to 24	0.25	0.15	Base	Base	0.20	0.40	0.40
25 to 27	0.30	0.20	Base	Base	0.20	0.40	...
28	0.30	0.20	Base	0.10	0.40	...	...
29 to 30	0.30	0.20	Base	0.10	...	...	...

BLACK EXTRAS FOR LENGTH

Gages	Under 30 inches to 18 inches	Under 60 inches to 30 inches	60 inches to 124 inches	Over 124 inches to 144 inches
10 to 16	0.15	0.10	Base	Base
17 to 18	0.25	0.15	Base	0.10
19 to 21	0.25	0.15	Base	0.10
22 to 24	0.25	0.15	Base	0.10
25 to 30	0.30	0.20	Base	0.10

Galvanized Sheets

Gage Differentials

Gage	Price per 100 pounds
30 Add	$0.50
29 Add	0.25
28 (Carload quantities)	Base
27 Deduct	0.15
25-26 Deduct	0.30
22-24 Deduct	0.45
17-21 Deduct	0.60
15-16 Deduct	0.75
12-14 Deduct	0.90
10-11 Deduct	1.00

STANDARD MISCELLANEOUS EXTRAS

	Extra per 100 pounds
Blued range steel	$0.70
Blued range steel patent leveled	0.95
Blued stove pipe stock, 25 gage and lighter	0.20
Blued stove pipe stock, 24 gage and heavier	0.50
Enameling stock, pickled and annealed finish	0.50
Deep stamping or drawing	0.25
Extra deep stamping or drawing	0.50
Extra box anneal	0.15

GALVANIZED EXTRAS FOR WIDTH

Gages	Under12 inches to 6 inches	Under 24 inches to 12 inches	24 inches to 32 inches	Over 32 inches to 36 inches	Over 36 inches to 40 inches	Over 40 inches to 42 inches	Over 44 inches to 44 inches	Over 48 inches to 52 inches	Over 52 inches to 54 inches
10 to 15	0.25	0.20	Base	Base	Base	0.10	0.20	0.30	0.40
16	0.25	0.20	Base	Base	0.10	0.10	0.20	0.35	0.50
17 to 17	0.30	0.20	Base	Base	0.10	0.10	0.20	0.35	0.50
19 to 21	0.30	0.20	Base	Base	0.20	0.30	0.40	0.50	0.75
22 to 24	0.30	0.20	Base	Base	0.20	0.40	0.60	...	...
25 to 26	0.35	0.25	Base	Base	0.30	0.60	...	...	...
27	0.35	0.25	Base	0.10	0.50	0.75	...	...	...
28	0.35	0.25	Base	0.20	0.60	...	...	...	...
29 to 30	0.35	0.25	Base	0.20	...	...	...	...	...

GALVANIZED EXTRAS FOR LENGTHS

Gages	Under 30 inches to 18 inches	Under 60 inches to 30 inches	60 to 124 inches	Over 124 inches to 144 inches	Over 144 inches to 168 inches	Over 168 inches to 180 inches	Over 180 inches to 192 inches	Over 192 inches to 216 inches	Over 216 inches to 228 inches
10 to 12	0.20	0.10	Base	Base	0.50	0.60	0.60	0.75	1.00
13 to 14	0.20	0.10	Base	Base	0.50	0.75	0.75	1.00	1.50
15 to 16	0.20	0.10	Base	Base	0.50	0.75	...	...	...
17 to 24	0.30	0.20	Base	0.10	...	...	...	...	...
25 to 30	0.35	0.25	Base	0.10	...	...	...	...	...

Blue Annealed Sheets

GAGE DIFFERENTIALS

Gage	Price per 100 pounds
8 and heavier	Less $0.05
9 and 10, carload quantities	Base
11 and 12	0.05
13 and 14	0.10
15 and 16	0.20

EXTRAS FOR WIDTH

Gage	Extra per 100 pounds
16 and heavier under 24 to 12-inch	$0.10
16 and heavier under 12 to 6-inch	0.15
16 and heavier under 24-inch and wider	None

EXTRAS FOR LENGTH

Gage	Extra per 100 pounds
16 and heavier, 60-inch and longer	None
16 and heavier, under 60 to 30-inch	0.10
16 and heavier, under 30 to 18-inch	0.15
Deoxidizing	0.15
Extra deep stamping or drawing	0.50
Full cold rolled and reannealed	0.25
Full pickled, full cold rolled and reannealed	0.75
Lime finish	0.10
Long ternes, special finish	0.75
Oiling	0.10
Patent or stretcher leveling	0.25
Pickled, annealed, cold rolled and reannealed for tinning	0.50
Resquaring, 5% of price of sheet at time of resquaring.	
Roller leveling	0.10
Single pickled	0.45
Single pickled, cold rolled and reannealed	0.50
Single pickled, oiled or lime finish	0.55
Carbons over 0.25 to 0.40 per cent	0.10
Carbons over 0.40 to 0.60 per cent	0.25
Carbons over 0.60 to 0.90 per cent	0.40
First grade metal furniture stock, full pickled, full cold rolled, reannealed, stretcher leveled, not resquared	1.00
Second grade metal furniture stock, single pickled, full cold rolled reannealed, stretcher leveled, not resquared	0.85

Automobile Sheets

	Primes with seconds up to 15% per 100 lbs.
Automobile body stock	Base, 22 gage
Auto body stock, deep stamping	0.25
Auto body stock, extra deep stamping	0.50
Hood, flat fender, door and apron, or splash guard stock	0.25
Crown fender, cowl and radiator casing, deep stamping	0.50
Crown fender, cowl and radiator casing, extra deep stamping	0.75

Price of seconds, 10 per cent less than the invoice price for corresponding primes.

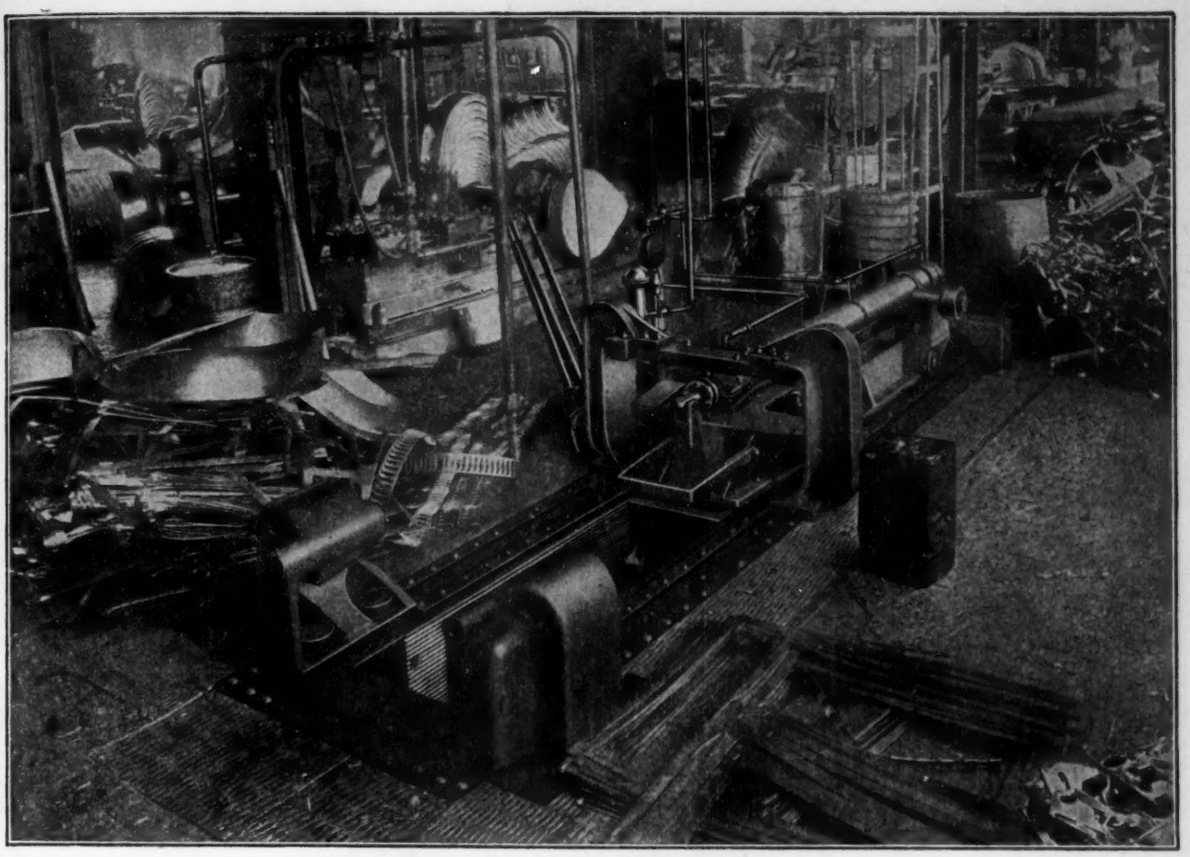
EXTRAS FOR EXTREME WIDTHS

	Per 100 lbs.
10-16 gage over 36 inches to 44 inches	0.10
10-16 gage over 44 inches to 48 inches	0.35
10-16 gage over 48 inches to 52 inches	0.50
17-18 gage over 36 inches to 44 inches	0.10
17-18 gage over 44 to 48 inches	0.20 to 0.35
17-18 gage over 48 inches to 52 inches	0.60
18 gage and heavier under 24 to 12 inches	0.15
18 gage and heavier under 12 to 6 inches	0.25
19 gage and lighter under 24 to 12 inches	0.15
19 gage and lighter under 12 to 6 inches	0.25
19-21 gage over 36 inches to 44 inches	0.30
19-21 gage over 44 inches to 48 inches	0.50
22-24 gage over 36 inches to 40 inches	0.40
22-24 gage over 40 inches to 44 inches	0.80

Black sheet extras to apply on narrow widths.

EXTRAS FOR LENGTHS

	Price per 100 pounds
16 gage and heavier over 60 inches to 144 inches	Base
16 gage and heavier under 60 inches to 30 inches	$0.10
16 gage and heavier under 30 inches to 18 inches	0.15
17 to 24 gage over 24 inches to 144 inches	0.10
17 to 24 gage under 60 inches to 30 inches	0.15
17 to 24 gage under 30 inches to 18 inches	0.25
25 gage and lighter over 24 inches to 144 inches	0.10
25 gage and lighter under 60 inches to 30 inches	0.20
25 gage and lighter under 30 inches to 18 inches	0.30



Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

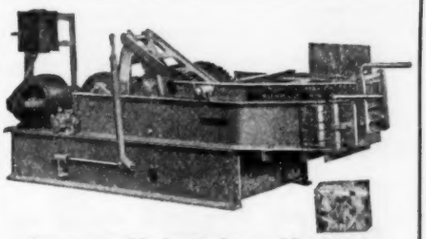
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3 -inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

Butt Weld

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

	Carload
Pittsburgh less carload discounts. 4 points larger	

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2¼-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½,5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts

Carbon, 0.10 to 0.20 per cent	83 off
Carbon, 0.30 to 0.40 per cent	81 off
Carbon, 0.40 to 0.50 per cent	net price

Plus differentials and extras for cutting.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼ inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base.

Extras per Pound for Width or Diameter

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square feet, if ordered to weight—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼ inch thick and heavier.

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including ⅛-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 inches Wide

Plates less than ¼-inch gage to and including ⅛-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept., or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection ..... No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH or DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet..No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .30c